United States Department of Agriculture
Forest Service

United States Department of the Interior
Bureau of Land Management

Greater Sage-grouse Bi-state Distinct Population Segment Forest Plan Amendment

Revised Draft Environmental Impact Statement

Humboldt-Toiyabe National Forest; Bureau of Land Management Carson City District, and Battle Mountain District Tonopah Field Office; Alpine and Mono Counties, California; and Douglas, Esmeralda, Lyon, and Mineral Counties, Nevada

July 2014

Greater Sage-grouse Bi-state Distinct Population Segment
Forest Plan Amendment Draft Environmental Impact Statement
Alpine and Mono Counties, California
Douglas, Esmeralda, Lyon, and Mineral Counties, Nevada

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Abstract: The Humboldt-Toiyabe National Forest (the Forest) proposes to amend the Toiyabe National Forest Land and Resource Management Plan, and the Bureau of Land Management proposes to amend the Carson City District and Tonopah Field Office resource management plans to conserve, enhance, and/or restore habitats to provide for the long-term viability of the Greater Sage-grouse Bi-state Distinct Population Segment. This action is needed to address the recent "warranted, but precluded" Endangered Species Act (ESA) finding from the U.S. Fish and Wildlife Service (USFWS) by addressing needed changes in the management and conservation of the Bi-state Distinct Population Segment habitats within the project area to support overall greater sage-grouse population management objectives within the states of Nevada and California. In preparation of this revised draft environmental impact statement (EIS), three alternatives were considered in detail and six were considered and eliminated from detailed consideration. The three alternatives considered in detail are the (1) no-action alternative that would not amend the land use plans with additional regulatory mechanisms, (2) the modified proposed action that would amend the plans to include goals and objectives, and standards and guidelines to direct the management of activities proposed in grouse habitat, and (3) the alternative to the modified proposed action that would amend the plans similar to the proposed action, but with more conservation-focused goals and objectives, and standards and guidelines. At this point in the analysis process the proposed action is the preferred alternative. The revised draft EIS also proposes to amend the Toiyabe Forest Plan to allocated approximately 258,330 acres that fall within the amendment area and that were transferred to the Forest

Service under PL 100-550 (April 26, 2989; Nevada Enhancement Act) to the Bridgeport Pinyon/Juniper Management Area.

This proposed amendment is subject to the objection procedures of 36 CFR 219 subpart B (see 219.52(a)). It is important that reviewers comment in a way useful to the Agency's preparation of the revised DEIS. Therefore, comments should be provided prior to the close of the comment period and should clearly articulate the reviewer's concerns. The comment period for this revised draft EIS extends 90 days following publication of the notice of availability in the *Federal Register*. The submission of timely and specific comments can affect a reviewer's ability to participate in subsequent administrative review or judicial review. Comments received in response to this solicitation, including names and addresses of those who comment, will become public record for this proposed action. Comments submitted anonymously will be accepted and considered; however, anonymous comments will not provide the respondent with standing to participate in subsequent administrative or judicial reviews.

Send Comments to:	**Jim Winfrey** **Humboldt-Toiyabe National Forest** **1200 Franklin Way** **Sparks, NV 89431**
Date Comments Must Be Received:	**90 days after the publication of the notice of availability in the *Federal Register*, expected August 7, 2014**

Summary

The Humboldt-Toiyabe National Forest (the Forest) proposes to amend the Toiyabe National Forest Land and Resource Management Plan (LRMP) and the Carson City District and Tonopah Field Office resource management plans (RMPs) of the BLM to conserve, enhance, and/or restore habitats to provide for the long-term viability of the Greater Sage-grouse Bi-state Distinct Population Segment (referred to in this document as *Bi-state DPS*). The area affected by the proposed amendment includes approximately 650,746 acres of mapped habitat on Forest Service- and BLM-administrated lands in both Nevada and California. This action is needed to address the recent "warranted, but precluded" Endangered Species Act (ESA) decision from the U.S. Fish and Wildlife Service (USFWS) by addressing needed changes in the management and conservation of the Bi-state DPS habitats within the project area to support greater sage-grouse population management objectives within the states of Nevada and California.

This project was introduced to the public via a notice of intent to prepare an environmental impact statement (EIS) published in the *Federal Register* on November 30, 2012. The publication of the notice of intent started the scoping period and comments were requested to be received by January 30, 2013. The Forest sent out news releases about the project starting December 6, 2012; conducted public meetings on January 9 and 10, 2013; and sent out a scoping letter on November 30, 2012, to about 200 interested parties. After the scoping period, issues were identified and edits were made to the proposed regulatory mechanisms to address comments. These issues are addressed in the original draft EIS, and while other alternatives to the proposed action were considered, only the no action and the proposed action alternatives were analyzed in detail. The original draft EIS notice of availability was published in the *Federal Register* on August 23, 2013, with the comment period closing on November 20, 2013. This comment period was extended twice and ultimately ended on January 17, 2014. In addition, on March 21, 2014, Tony Wasley, Co-chairman of the Bi-state Executive Oversight Committee sent a letter to Ren Lohoefener, Regional Director of the USFWS, requesting, in part, the USFWS provide an additional 6 months to analyze new information before making a final decision on the potential listing of the Bi-state Sage-grouse Distinct Population Segment (DPS). On March 31, 2014, this request was granted by the USFWS for an additional 6 months beyond the original October 2014 deadline, which extends the new deadline to April 2015.

With this new timeline the Forest Service and BLM decided to revise the original draft EIS to more fully consider and analyze comments received from the public and new data concerning the conservation of the Bi-state DPS.

Major conclusions in this revised draft EIS include:

- The proposed action and the alternative to the proposed action would provide the regulatory mechanisms needed to respond to the USFWS's publishing of a "warranted, but precluded" ESA listing petition 12-month finding for the Bi-state DPS and improve the ability of the Forest Service and BLM to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS.
- Impacts of both alternatives proposed on various resources are expected to be minor, with specific project design features being addressed at the site-specific NEPA level. For several years already, the Forest Service and BLM have been incorporating conservation for the Bi-state DPS in project design, so many of the changes in site-specific activities are expected to be minimal. However, some proposed standards and guidelines may cause a shift in the specific location of certain activities away from Bi-state DPS habitat (i.e., grazing, recreation activities, etc.), and therefore have been analyzed in detail for further consideration in this revised draft EIS.

- Based upon the effects of the alternatives, the responsible official will decide (1) to amend the Forest Plan as described in the proposed action, (2) to amend the Forest Plan with a modification of the proposed action, or (3) not to amend the Forest Plan.

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Chapter 1. Purpose of and Need for Action

Introduction

The Forest Service has prepared this revised draft environmental impact statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and state laws and regulations. This revised draft EIS discloses the direct, indirect, and cumulative environmental impacts that could result from the proposed action and alternatives.

The Humboldt-Toiyabe National Forest (the Forest), is issuing this revised draft EIS to disclose the expected effects of a proposed amendment to the Toiyabe Land and Resource Management Plan (1986, Forest Plan) to incorporate management direction to conserve, enhance, and restore habitat for the Bi-state Distinct Population Segment of the Greater Sage-grouse (Bi-state DPS). The area to which the proposed amendment would apply would be on the Bridgeport and Carson ranger districts of the Forest.

While the Forest Service is the lead agency for preparing the EIS, the BLM, as a cooperating agency, is proposing to amend the Tonopah Field Office Resource Management Plan (RMP) and Carson City Field Office Consolidated RMP based on analysis in this EIS.

The combined Forest Service and BLM area to which the amendments would apply (amendment area) contains portions of Douglas, Esmeralda, Lyon, and Mineral counties in Nevada; and in portions of Alpine, Inyo, and Mono counties in California (figure1-1). The total amendment area boundary is the land encompassing lands administered by the Forest Service (national forest system land), and by the BLM (public land) that also includes other agency lands and private lands (see figure1-2). This total amendment area boundary encompasses approximately 3,030,729 acres. The amendment area where this proposed action would apply encompasses only the Forest Service- and the BLM-administered lands. These lands total approximately 2,669,496 acres (about 1,701,618 acres of BLM, and about 967,878 acres of Forest Service).

About 650,746 acres of Bi-state DPS habitat falls within the total amendment area boundary. The total habitat within the Forest Service- and BLM-administered lands within the amendment area is approximately 648,800 acres (about 223,935 acres of BLM, and about 426,809 acres of Forest Service).

Additional documentation, including more detailed analyses of affected resources, may be found in the planning record located at the Humboldt-Toiyabe National Forest Supervisor's office at 1200 Franklin Way, Sparks, Nevada 89431.

Background

In March 2010 the USFWS published a "warranted, but precluded" Endangered Species Act listing petition 12-month finding for the Greater Sage-grouse Bi-state Distinct Population Segment (Bi-state DPS). The USFWS concluded that existing regulatory mechanisms to protect sage grouse and their habitats in the Bi-state area "…afford sufficient discretion to the decision makers as to render them inadequate to ameliorate the threats to the Bi-state Distinct Population Segment". The major threats identified by the USFWS in regards to actions authorized on national forest system lands and BLM public lands is habitat modification, including modification from infrastructure (fences, powerlines, and roads), recreation, mining, energy

development, grazing, fire, invasive species, noxious weeds, pinyon-juniper encroachment, and climate change.

Changes and Updates in this Revised Draft Environmental Impact Statement

The Notice of Availability for the Greater Sage-grouse Bi-state Distinct Population Segment Forest Plan Amendment was published in the *Federal Register* August 23, 2013. This publication started the 90-day comment period that ended November 20, 2013. However, this comment period was extended twice, ending finally on January 17, 2014 (for more details, see the "Public Involvement" section). In addition, on March 21, 2014, Tony Wasley, Co-chairman of the Bi-state Executive Oversight Committee, sent a letter to Ren Lohoefener, Regional Director of the USFWS requesting, in part, the USFWS provide an additional 6 months to analyze new information before making a final decision on the potential listing of the Bi-state DPS. On March 31, 2014, this request was granted by the USFWS for an additional 6 months beyond the original October 2014 deadline, which extends the new deadline to April 2015.

After considering the comments received from the public, as well as the opportunity provided by the 6-month extension by the USFWS, the Humboldt-Toiyabe National Forest decided to revise the original draft EIS to be able to respond to public comments and to reconsider their original approach to the conservation efforts for the grouse by further clarifying management direction and analyze additional research to help inform the decisions to be made. As a result of this new direction, the proposed action had been modified, a new alternative to the proposed action has been developed, and the area boundary encompassing where the plan amendment would be applied to has been changed. Issuing the revised draft EIS provides opportunity for the public to comment on these changes.

Modified Proposed Action: Several comments received were concerned with the lack of specificity in several of our standards and guidelines. In response to these concerns, the original proposed action was modified to include more specific regulatory mechanisms (i.e., goals and objectives, and standards and guidelines) to help guide activities for resource management. This modified proposed action (i.e., referred to from now on a simply "the proposed action") is designed to incorporate use of resources in addition to providing protections for the Bi-state DPS and its habitat.

Addition of An Alternative to the Proposed Action: When the decision was made to respond to comments by modifying the proposed action, the Forest and BLM decided to take the opportunity to explore an additional alternative that focused on a more conservation conservative approach to resource use within habitat. This alternative is more restrictive on mineral extraction, livestock management, and recreation activities within habitat areas.

Both the modified proposed action and the new alternative also take into consideration the ongoing efforts for the greater sage-grouse occurring simultaneously in Nevada and California as well as across nine other western states. We have taken this opportunity to make sure the regulatory mechanisms proposed in this revised draft EIS are consistent with these other efforts in order to provide the public and our partner agencies with clear direction for the management of Bi-state DPS habitat on all public lands.

Modified Plan Amendment Area Boundary: Shown in figure1-1 and figure1-2, the modified boundary is based on the political management unit contained within the Humboldt-Toiyabe National Forest and the BLM Carson City and Battle Mountain District-Tonopah Field Office.

This boundary was modified from the one presented in the draft EIS to respond to comments questioning the accuracy of the project boundary. In some instances the habitat for the Bi-state DPS was not present within the original boundary. The original plan amendment area boundary in the draft EIS was over 5 million acres (5,040,457); this modified plan amendment area in the revised draft EIS contains a little over 3 million acres (3,030,729).

Table 1-1. Comparison of acreages between old and new plan amendment area boundaries (acres of habitat)

Plan Amendment Area Boundary	Bi-state DPS Habitat Acres
Draft EIS	648,800
Revised Draft EIS	650,746

Table 1-2. Comparison of acreages between old and new plan amendment area boundaries (acres of land within the boundary by county)

Plan Amendment Area Boundary	Alpine County, CA	Mono County, CA	Carson City, NV	Douglas County, NV	Esmeralda County, NV	Lyon County, NV	Mineral County, NV
Draft EIS	249,701	454,227	51,403	370,310	1,725,701	903,714	1,285,402
Revised Draft EIS	77,130	347,045	37,398	302,980	816,243	555,578	894,355

Table 1-3. Comparison of acreages between old and new plan amendment area boundaries (acres of land by general ownership categories)

Plan Amendment Area Boundary	Bureau of Indian Affairs	BLM	Department of Defense	Forest Service	USFWS	National Park Service	Private	State
Draft EIS	12,902	3,044,829	125,547	1,232,353	15	45	549,903	32,310
Revised Draft EIS	4,384	1,701,618	52,197	967,878	0	0	285,033	18,044

Note: Does not include acreages of water features within the boundary.

Figure1-1. Vicinity map of the amendment area boundary

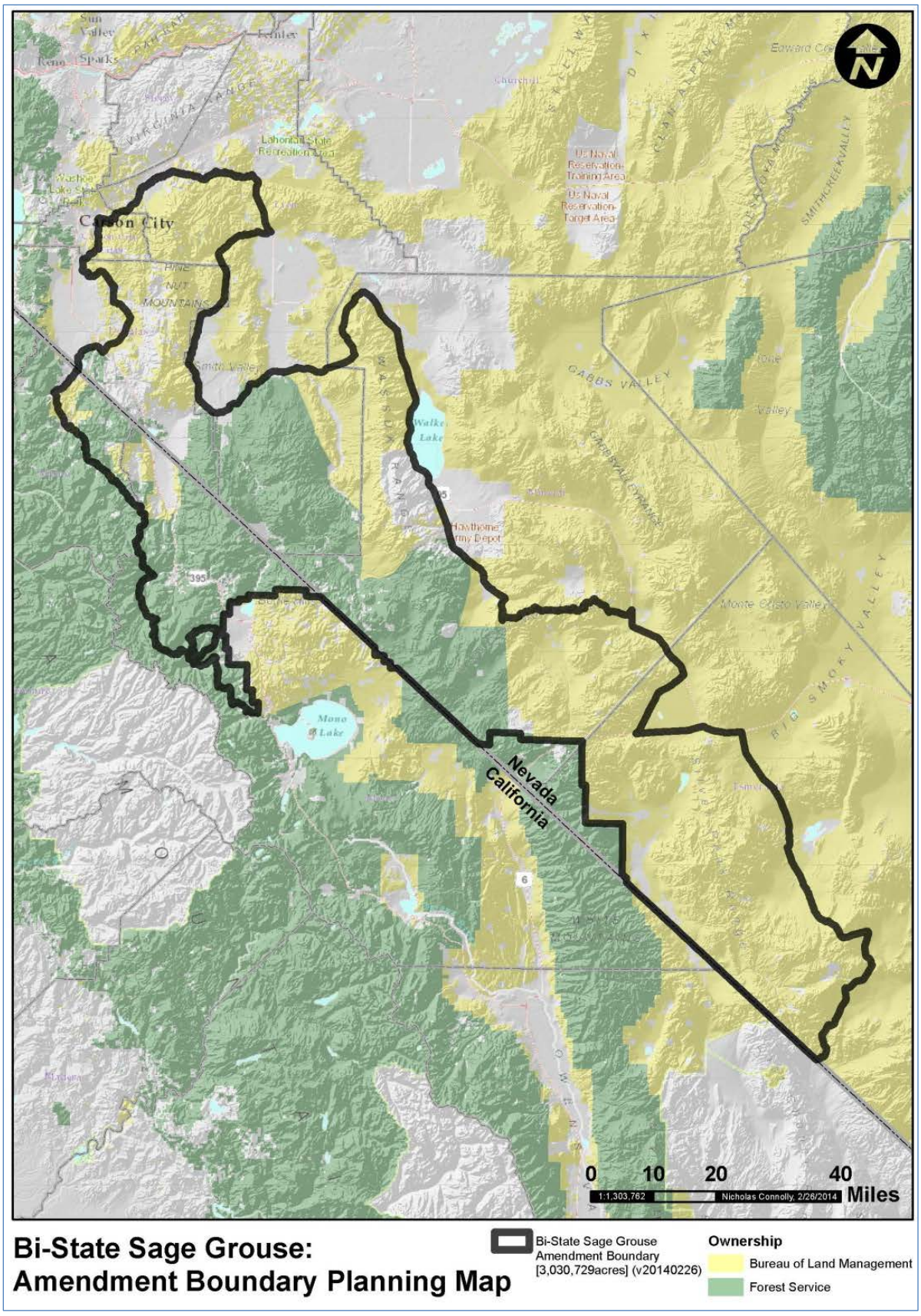

Figure1-2. Forest Service- and BLM-administered lands within the amendment area

To clarify, the plan amendment management direction (i.e., regulatory mechanisms) proposed in this document would apply to identified Bi-state DPS habitat and buffers *only* on Forest Service- or BLM-administered lands within the plan amendment area boundary.

Also distinct from the plan amendment area boundary and the area to which the plan amendment management direction would apply, the "analysis area boundary" is the boundary identified by each specialist for their particular resource. These boundaries may vary by resource as needed for analysis. Boundaries for direct/indirect analysis may be different than boundaries needed for cumulative effects analysis for each resource. These analysis area boundaries are defined by the specialist based on the proposed goals and objectives, and standards and guidelines, and their potential effects to management of the resource.

Modification and Clarification of Applicable Land Use Plan: The plan amendment area boundary includes approximately 258,336 acres of lands that were transferred from the BLM to the Forest Service under the Nevada Enhancement Act (PL 100-500, April 26, 1989). The purpose of this Act was to "…increase and improve the efficiency and cost effectiveness of management of lands by having administration under one agency." In addition, the Act states that these lands would be subject to the planning requirements of section 6 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) as amended by the National Forest Management Act (NFMA). The Forest Service had intended to establish the application of its management direction during the anticipated revision effort for the Toiyabe Forest Plan; however, that revision has not yet occurred.

Because the proposed amendment is management direction additional to management based on either a BLM or Forest Service land use plan, it is important to clarify what that base is. Because the Nevada Enhancement Act required such change in base management to be done under the RPA or NFMA, the change in management direction from the BLM to the Forest Service for the transferred lands in the plan amendment area is being proposed as part of the amendment and described in the proposed action. The proposed action and alternative, therefore, would apply the management direction under the Toiyabe Forest Plan, as amended and including an amendment for the Bi-state DPS, to the acres in the plan amendment area boundary that were transferred to the Forest Service under the Nevada Enhancement Act.

Furthermore, the Toiyabe Forest Plan assigns lands to management areas. The Nevada Enhancement Act lands in the plan amendment area boundary surround the portions of the Bridgeport Ranger Districts located in Nevada and are all adjacent to the Bridgeport Pinyon/Juniper Management Area #6 as described in the Toiyabe National Forest Land and Resource management Plan. The Bridgeport Pinyon/Juniper Management Area is 605,400 acres with management emphasis on key values of wildlife, dispersed recreations, and grazing. Also included in the management direction is the need to provide for the orderly exploration, development, and reclamation of mining resources in a manner that minimizes effects on range, wildlife, and recreation values. The proposed amendment and alternative, therefore, would also allocate these transferred lands to management area #6 of the Toiyabe Forest Plan.

Current Forest Service and BLM Conservation Effort

The Bridgeport and Carson ranger districts have been reducing impacts to the Bi-state DPS and habitat by designing and incorporating protective measures (i.e., management direction) into all of their projects for the past several years. These proactive, protective measures are supported by but not specified in the current land management plans. These efforts were documented in the March 15, 2012, publication from the Bi-state Executive Oversight Committee for the Conservation of Greater Sage-grouse entitled, "Bi-state Action Plan: Past, Present and Future Actions for the Conservation of the Greater Sage-grouse Bi-

state Distinct Population Segment." That document not only highlighted the current conservation activities, but also identified the primary threats to the Bi-state DPS.[1]

On December 3, 2012, the BLM Nevada State Office released Instruction Memorandum (IM) No. NV-2013-009, that provides interim conservation policies and procedures to the BLM field officials to be applied to ongoing and proposed authorizations and activities that affect the Bi-state DPS and its habitat. The IM direction ensures that interim conservation policies and procedures are implemented when the Carson City District or Tonopah Field Office (within the Battle Mountain District) authorizes or carries out activities on public land during the current revision of their RMPs so as to not foreclose any future options before the planning process can be completed. The IM direction supplements the direction for Bi-state DPS contained in the BLM Washington Office (WO)-IM-2010-071 (Gunnison and Greater Sage-grouse Management Considerations for Energy Development) and is consistent with WO-IM-2011-138 (Sage-grouse Conservation Related to Wildland Fire and Fuels Management).

Other Related Efforts

Various agencies have been working for several years to study and improve the habitat conditions for the greater sage-grouse and the Bi-state DPS. These agencies include the BLM, Forest Service, USFWS, United States Geological Service (USGS), National Resource Conservation Service (NRCS), Nevada Department of Wildlife, and California Department of Fish and Game. Such efforts have also been made by the Bi-state DPS local area working group.

Some of these agencies have produced documents including the Bi-state Sage-grouse Action Plan of 2012 and the Technical Report on National Greater Sage-grouse Conservation Measures and Planning Strategy in 2011. The BLM and Forest Service are working on five sub-regional EISs covering 10 western states to amend up to 20 land and resource management plans for the greater sage-grouse. Those EISs, however, do not specifically address the Bi-state DPS, but do contain some applicable information. For more information on this regionwide effort see Nevada and Northeastern California Great Sage-grouse Land Use Plan Amendment Draft Environmental Impact Statement (2013).

Purpose and Need for Action

To address the USFWS finding, the Forest and the BLM Carson City District and the Tonopah Field Office are proposing to amend their respective Forest Plan and RMPs, collectively referred to as "land use plans", to include goals and objectives, and/or standards and guidelines, or actions and best management practices as part of a regionwide effort (USDI BLM and USDA Forest Service, draft, May 2013) to conserve the Bi-state DPS and its habitat.

The purpose of the proposed amendment is to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS. This action is needed to address the recent "warranted, but precluded" Endangered Species Act listing, and to support Bi-state DPS population management objectives within the states of Nevada and California. Under the National Forest Management Act of 1976 (NFMA) and the Federal Land Policy and Management Act of 1976 (FLPMA), the Forest Plan and RMPs direct and guide management of the national forest system and BLM lands and resources administered under them. All projects and activities must be consistent with the applicable forest plan or RMP.

[1] Threats include, but are not limited to, urbanization, roads and fences, livestock and wild horse grazing, pinyon and juniper encroachment, wildfire, and isolation of small populations. In addition, threats can also include permitted activities such as recreation events; mineral exploration, development, and production; and vegetation treatments.

Proposed Action

The Forest Service is proposing to amend the Toiyabe National Forest Land and Resource Management Plan (Forest Plan) and the BLM is proposing to amend the Tonopah Resource Management Plan (RMP) and the Carson City Field Office Consolidated RMP by adding to or changing some of the land use plan management direction, i.e., regulatory mechanisms, to reduce, eliminate, or minimize threats to Bi-state DPS habitat on Federal lands administered under those plans.

The specific regulatory mechanisms in the proposed plan amendment are identified in chapter 2 under the proposed action alternative.

The Forest Service is also proposing to establish the land use plan direction to which the amendment would apply for lands transferred to the Forest Service under the Nevada Enhancement Act to that of the Toiyabe Forest Plan, as amended, with allocation to Bridgeport Pinyon/Juniper Management Area #6.

Decision Framework

The Forest Plan amendments would be limited to direction specific to the conservation of the habitats of the Bi-state DPS (see figure 2-1, chapter 2) except for the areas in the plan amendment area boundary that were transferred to the Forest Service under the Nevada Enhancement Act. For those transferred areas, the Forest Plan amendment would apply the management direction of the Toiyabe Forest Plan; the management direction of the Bridgeport Pinyon/Juniper Management Area #6; and the direction specific to the conservation of the habitats of the Bi-state DPS. Based on this EIS the responsible official will decide:

1) To amend the land use plans as described in the proposed action;

2) To amend the land use plans as described in the alternative; or

3) Not to amend the land use plans.

Because the BLM may use this EIS as the basis for amending their RMPs, the EIS includes effects to BLM programs and resources. However, the decision to be made by the Forest Service responsible official is for only the Forest Plan and thus, affects only national forest system lands.

Public Involvement

The notice of intent was published in the *Federal Register* on November 30, 2012 (*Federal Register* Volume 77, Number 231). The notice asked for public comment on the proposal to be received by January 30, 2013.

In addition, a scoping letter was sent out to the public on November 30, 2012, describing the proposed action and asking for comments. This letter was sent out to approximately 200 organizations and individuals.

The Agency also published a news release in the *Reno Gazette Journal* on December 6, 2012 (with a stop date of January 30, 2013). The release described the project and invited public comment. The agencies also hosted two public meetings. One was held on January 9, 2013, in Minden, Nevada, and the other on January 10, 2013, in Smith Valley, Nevada, where about 15 people attended.

Public notification of this proposed action was posted online from November 29, 2012, to January 30, 2013, at http://www.fs.fed.us/nepa/nepa_project_exp.php?project=40683. This proposed amendment is subject to the objection procedures of 36 CFR 219 subpart B (see 219.52(a)).

The Notice of Availability for the Greater Sage-grouse Bi-state Distinct Population Segment Forest Plan Amendment was published in the *Federal Register* August 23, 2013; this publication started the 90-day comment period that ended November 20, 2013. However, this comment period was extended twice and then ended January 17, 2014. In addition, public notification of this draft EIS was posted online from August 16, 2013, through the end of the extended comment period at http://www.fs.fed.us/nepa/nepa_project_exp.php?project=40683. Also, a news release was published in the *Reno Gazette Journal* starting August 16, 2013 (with an original stop date of November 20, 2013). With each extension (first extension from November 20 to December 27, 2013, and the second from December 27, 2013, to January 17, 2014) a news release notified the public and was published in the *Reno Gazette Journal*, as well as a notice of the comment period extension published in the *Federal Register* on December 27, 2013.

More recently, on March 21, 2014, Tony Wasley, Co-chairman of the Bi-state Executive Oversight Committee sent a letter to Ren Lohoefener, Regional Director of the USFWS requesting in part the USFWS provide an additional 6 months to analyze new information before making a final decision on the potential listing of the Bi-state DPS. On March 31, 2014, the USFWS added 6 months beyond the original October 2014 deadline, which extends the new deadline to April 2015.

With the additional information gathered during the twice-extended comment period, as well as the additional time provided by the USFWS, the decision was made to prepare this revised draft EIS to allow the Forest Service and the BLM time to analyze new data and provide the public the opportunity to review and comment on the modifications made to the proposed action and the new alternative.

Issues

Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to address. Issues are defined as a point of disagreement, debate, or dispute about the proposed action based upon the effects of that action. These issues are separated into two groups, "key issues" and "non-key issues." Key issues were defined as those directly or indirectly caused by implementing the proposed action and are used to formulate alternatives or prescribe mitigation measures or monitoring requirements. Non-key issues were identified as those: (1) outside the scope of the proposed action; (2) already decided by law, regulation, Forest Plan, or other higher level decision; (3) irrelevant to the decision to be made; or (4) conjectural and not supported by scientific or factual evidence.

We addressed key and non-key issues in three ways: (1) developing an alternative to alter resource tradeoffs, (2) requiring mitigation to reduce impacts to a resource, and (3) disclosing and comparing the relative difference in resource effects between alternatives. One or more of these methods may be used to address an issue.

The following two key issues were identified during scoping for this project and are addressed in chapter 3.

1. Access Issue: The proposed action could result in a reduced level of access across the planning area, reducing opportunities for recreation on trails, routes, and cross-country, and limiting permits for discretionary actions on Forest Service- and BLM-administered lands.

a. Issue measure: Miles of travel routes that would potentially be changed from the current condition due to seasonal restrictions.

b. Issue measure: Potential changes to off-highway vehicle recreational events by timing, location and season.

c. Issue measure: Acres of land available for cross-country opportunities that would be closed.

d. Issue measure: Restrictions on special use permits issued for recreation purposes.

2. Economics Issue: The proposed action could adversely affect the economy of the region by limiting the utilization of rangelands, mineral sites, geothermal activities, and tourism due to buffer zones and timing limitations to protect the Bi-state DPS.

a. Issue measure: Estimate potential changes in forage availability or production (e.g., animal unit months).

b. Issue measure: Potential changes in availability of mineral resources and/or the potential extraction of mineral resources.

c. Issue measure: Estimated change in opportunities for the development of alternative energy resources (i.e., geothermal, solar, wind, etc.).

d. Issue measure: Estimated changes in the volume or type of tourism based on potential changes in travel and tourism related employment, and visitor information provided by the BLM recreation monitoring and Forest Service National Visitor Use Monitoring.

A qualitative discussion of how changes between the proposed action and alternatives affect the economic effects.

The following non-key issues were identified during scoping and brought forward to disclose the analysis to the public.

1. Effects to wildlife
2. Effects to range improvements and domestic livestock grazing
3. Effects to weeds
4. Effects to wild horses and burros
5. Effects to minerals
6. Effects to fire and fuels management

Applicable Laws, Regulations, Policies and Executive Orders

Disclosures and findings required by these laws and orders are contained in this EIS where appropriate:

- American Indian Religious Freedom Act of 1978
- Archeological Resource Protection Act of 1979
- Clean Air Act of 1979 (as amended)
- Clean Water Act of 1977 (as amended)
- Endangered Species Act of 1973 (as amended)
- Executive Order 11593 (Cultural)
- Executive Order 11988 (Floodplains)
- Executive Order 11990 (Wetlands)

- Executive Order 12898 (Environmental Justice)
- Executive Order 13007 (American Indian Sacred Sites)
- Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments)
- Executive Order 13186 (Migratory Bird Treaty)
- Forest and Rangeland Renewable Resources Planning Act of 1874 (as amended)
- Magnuson-Stevens Fishery Conservation and Management Act of 1996
- National Environmental Policy Act of 1969 (as amended)
- National Forest Management Act of 1976
- National Historic Preservation Act of 1966 (as amended)
- Native American Graves Protection and Repatriation Act of 1990
- Rescissions Act of 1995 (as amended)
- Wilderness Act of 1964
- General Mining Law of 1872 (as amended)
- Mineral Leasing Acts of 1920 (as amended)
- Mineral Material Acts of 1947 (as amended)
- Surface Resources Act of 1955
- Mining and Minerals Policy Act of 1970
- Energy Policy Act of 2005
- Geothermal Steam Act of 1970 (30 USC 1004)

Chapter 2. Alternatives, Including the Proposed Action

Introduction

This chapter describes and compares the alternatives considered for this revised draft EIS, and includes a description of the three alternatives considered. This chapter also presents the alternatives in comparative form, sharply defining the differences between the alternatives so there is clear basis to choose among options by the decision maker and the public. The information used to compare the alternatives is based upon the design of the alternative and/or the potential environmental, social, and economic effects of implementing each alternative.

Alternatives Considered

The Forest Service developed three alternatives in response to issues raised by the public—the no action, proposed action, and an alternative to the proposed action, summarized below.

Alternative A – No Action

Under the no-action alternative, current land use plans would continue to guide management of the amendment area which includes sensitive species direction (USDA Forest Service 1986 [as amended] and BLM RMP 2007). No forest plan or RMP (resource management plan) amendment would be approved for the purpose of conserving, enhancing, and/or restoring sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS. The lands in the plan amendment area boundary that were transferred from the BLM to the Forest Service under the Nevada Enhancement Act would not be brought under management direction of the Toiyabe Forest Plan.

Alternative B – The Proposed Action

The Forest Service is proposing to amend the Toiyabe National Forest Land and Resource Management Plan (Forest Plan) and the BLM is proposing to amend the Tonopah Resource Management Plan (RMP) and the Carson City Field Office Consolidated RMP by adding to or changing some of the regulatory mechanisms to reduce, eliminate, or minimize threats to Bi-state DPS habitat on Federal lands administered under those plans. The regulatory mechanisms would apply to Bi-state DPS habitat, described below, on Forest Service- and BLM-administered lands within the plan amendment area boundary.

The Toiyabe National Forest LRMP and BLM RMP amendments would recognize valid existing rights. Lands addressed in the LRMP and RMP amendments would be national forest system lands and public lands (including surface-estate, split-estate lands) managed by the Forest Service and BLM, respectively, in habitats of the Bi-state DPS. The LRMP and RMP amendments would apply only to Federal lands administered by either the Forest Service or the BLM, respectively.

Alternative B also establishes the lands within the plan amendment area boundary that were transferred under the Nevada Enhancement Act as being under the management direction of the Toiyabe Forest Plan, with allocation to the Bridgeport Pinyon/Juniper Management Area #6 and as amended by this alternative.

Table 2-1 lists the desired future conditions, expressed as desired habitat conditions, goals and objectives, and standards and guidelines, proposed to amend the Toiyabe National Forest LRMP and the BLM RMPs.

Alternative C – The Conservation Alternative

This alternative proposes goals and objectives, and standards and guidelines that address the purpose and need of this plan amendment by focusing on a more conservation-conservative-approach to land management than the proposed action by including more requirements for project design and establishing a more detailed schedule for accomplishments. This alternative allows for the analysis and disclosure of a range of methods to achieve the purpose and need of providing regulatory mechanisms to reduce, eliminate, or minimize threats to Bi-state DPS habitat on Federal lands. The regulatory mechanisms would apply to Bi-state DPS habitat, described below, on Forest Service- and BLM-administered lands within the plan amendment area boundary.

Alternative C also establishes the lands within the plan amendment area boundary that were transferred under the Nevada Enhancement Act as being under the management direction of the Toiyabe Forest Plan, with allocation to the Bridgeport Pinyon/Juniper Management Area #6 (see appendix B for map) and as amended by this alternative.

Alternatives Described in Detail

Common to Alternatives B and C: Nevada Enhancement Act Lands

Alternatives B and C would establish management of the lands within the plan amendment area boundary that were transferred from BLM to the Forest Service under the Nevada Enhancement Act to being under the Toiyabe National Forest Land and Resource Management Plan. These alternatives would increase the size of the Bridgeport Pinyon/Juniper #6 Management Area from 605,400 acres to 863,736 acres (see appendix B). All general and Management Area #6-specific management plan direction as presented in the Toiyabe National Forest Land and Resource Management Plan as amended, would apply to all portions of these lands, and amended by the alternative. The amendment would recognize valid existing rights.

Common to Alternatives B and C: Bi-state DPS Habitat

For this amendment, Bi-state DPS habitat (habitat) refers to the "Bi-state DPS Habitat Map" (figure 2-1) of all seasonal and year-round Bi-state DPS habitat plus all land within 7 kilometers (about 4 miles) of active leks. The habitat map was created with modeling and aerial imagery, and is therefore subject to field-verification and updates as new information becomes available.

While greater sage-grouse leks and core breeding habitat are fairly stable over time, they are not fixed geographic points and are subject to change. For example, leks may become inactive or active and habitat areas may change over time (such as after wildland fire modifies habitat). Appropriate conservation measures will be considered and applied on a case-by-case basis through NEPA for proposed projects based on ground surveys within proposed disturbance areas.

For the habitat map in this amendment proposal, the Forest Service proposes to use the habitat map created and approved by the Bi-state Sage Grouse Technical Advisory Committee, consisting of representatives from California and Nevada BLM, U.S. Geological Survey, Forest Service, USFWS, and the California and Nevada state wildlife agencies. The May 12, 2012, version of this map is available on the Humboldt-Toiyabe National Forest and BLM websites. Updates may become available on an annual basis as monitoring and mapping continues. The proposed amendment would allow adjustments to the map as new science provides without requiring a subsequent Forest plan amendment.

Table 2-1. Bi-state sage grouse desired habitat conditions

Category	Desired Condition
General	▪ Bi-state sage grouse habitat is expanded beyond the current acres present on national forest system lands and BLM public lands, as of 2014.
	▪ Sagebrush communities are large and intact.
	▪ Riparian areas are managed for proper functioning condition, have diverse species richness, including perennial forbs; a perimeter: area ratio of 1 to 6.667 (0.15); and hiding cover around the edge.
	▪ Soils are stable and hydrological function is intact.
	▪ The native plant community is resilient, with the appropriate shrubs, grasses, and forbs, as identified in the ecological site description.
	▪ The extent and dominance of invasive species, including cheatgrass, is limited.
	▪ There is no conifer encroachment within line-of-site of leks or nesting areas; there are less than 3 to 5 trees per acre in other areas (Connelly et al. 2000).
Leks	▪ There is adjacent sagebrush cover (Connelly et al. 2000; Blomberg et al. 2012).
	▪ No structures taller than the surrounding vegetation community are within line-of-sight of the lek or within 4 miles (about 7 kilometers) (Connelly et al. 2000; Doherty et al. 2008).
Nesting (Breeding)	▪ Sagebrush canopy cover is greater than 20 percent.
	▪ Non-sagebrush canopy cover is greater than 20 percent.
	▪ Total shrub canopy cover is greater than 40 percent.
	▪ Sagebrush height is greater than 12 inches.
	▪ Perennial grass cover is not less than 5 percent, but is greater than 10 percent if total shrub cover is less than 25 percent.
	▪ Annual grass cover is less than 5 percent.
	▪ Forb cover is greater than 10 percent.
	▪ Grass/forb height is greater than 7 inches.
Brood-Rearing/ Summer	▪ Sagebrush canopy cover is 10 to 25 percent.
	▪ Total shrub canopy cover is 14 to 25 percent.
	▪ Sagebrush height is greater than 12 inches.
	▪ Perennial grass cover is greater than 7 percent.
	▪ Forb cover is greater than 7 percent.
	▪ Grass/forb height is greater than 7 inches.
	▪ Perennial forb diversity is greater than five species present.
	▪ Meadow edge (ratio of perimeter to area) is greater than 0.015.
	▪ Species richness is greater than five species.
Winter	▪ Winter habitat is composed of sagebrush plant communities with sagebrush canopy cover greater than 10 percent and sagebrush height greater than 25 centimeters (9.8 inches) above snow level.

Source: (For nesting, brood-rearing, and winter habitat condition) USDI Fish and Wildlife Service (2013).

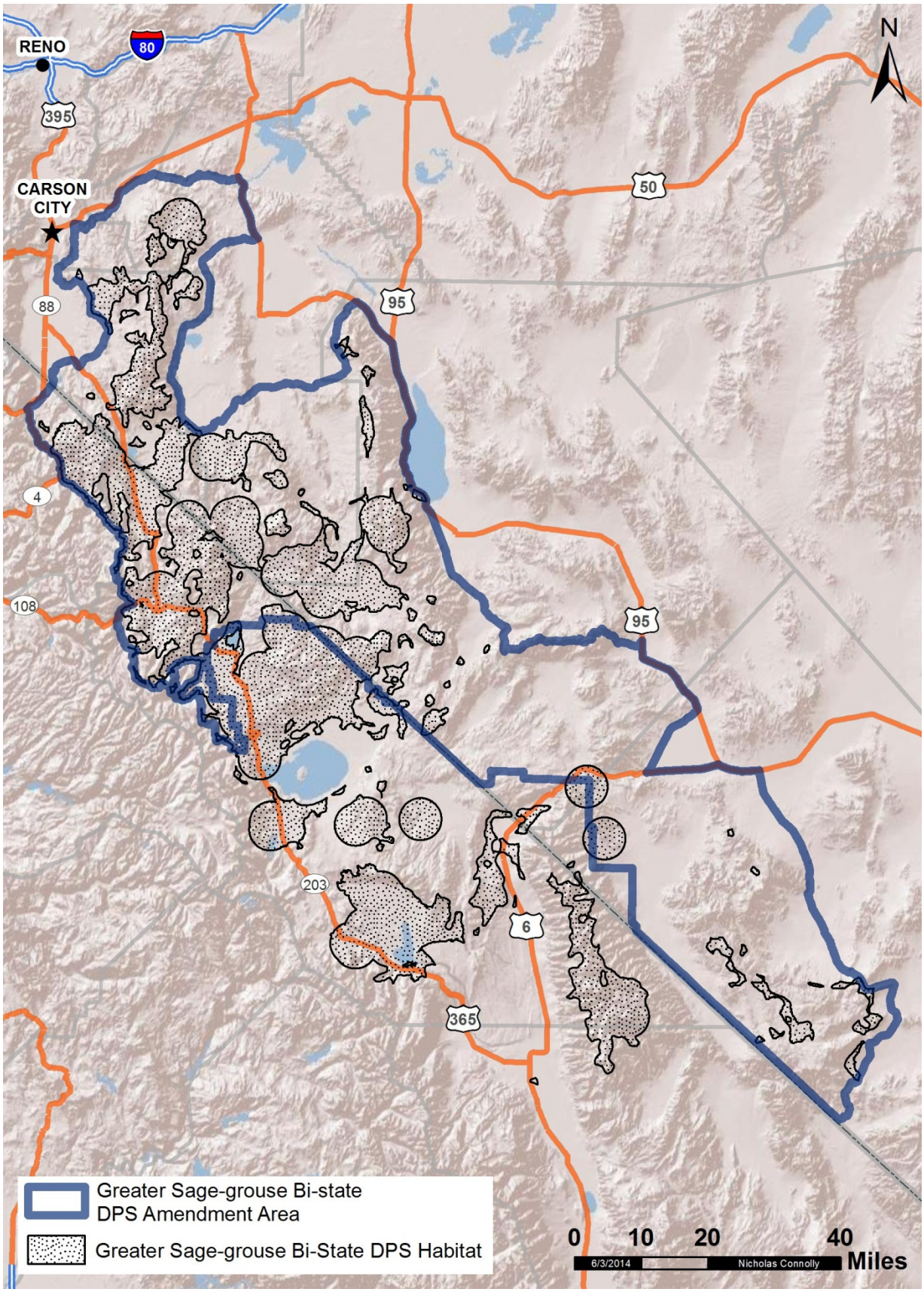

Figure 2-1. Bi-state DPS habitat

Seasonal Dates for the Bi-state Sage Grouse

These dates listed in Table 2-2 are to be used to evaluate impacts unless site-specific information is available.

Table 2-2. Dates used to evaluate impacts unless site-specific information is available

Date	Impacts
March 1–May 15	Breeding (critical disturbance period; dates may shift 2 weeks back or forward in atypically dry or wet years based on observations of lek activity)
April 1–June 30	Nesting and early brood-rearing (critical disturbance period; dates may shift 2 weeks back or forward in atypically dry or wet years based on observations of lek activity)
July 1–September 15	Late brood-rearing
September 1–October 31	Fall
November 1–March 1	Winter

Alternative A – No Action

Under the no-action alternative, current land use plans would continue to guide management of the amendment area which includes sensitive species direction (USDA Forest Service 1986 [as amended] and BLM RMP 2007]). No forest plan or RMP (resource management plan) amendment would be approved for the purpose of conserving, enhancing, and/or restoring sagebrush and associated habitats to provide for the long-term viability of the Bi-state sage grouse. While the management plans would not be amended, the agencies would continue to manage for the sage grouse. The BMPs (best management practices) used by the Forest to protect habitat would still be implemented on a project-to-project basis (for details see appendix A). The Interim Management Direction signed in December 2012 for the Nevada BLM (see appendix A) would also dictate how projects conducted in sage grouse habitat are analyzed and implemented. The Bi-state DPS is a Forest Service Region 4 sensitive species, included as "sage grouse" in the Forest Plan. Current management direction most pertinent to the conservation of Bi-state DPS includes Wildlife and Fish, goal 1:

> …sensitive species will be recognized and protected through habitat management and coordination with state wildlife agencies. Habitat will be in good-to-excellent condition.

Current management also includes standards for sage grouse habitat management (Wildlife and Fish, standard 3). Additionally, resource- or activity-specific management direction addressing wildlife, sensitive species, and sagebrush would continue to apply to the Bi-state DPS. The current applicable management direction is displayed in Table 2-4.

The no-action alternative would not meet the purpose and need for this project. The catalyst for this project is the underlying need for the institution of regulatory mechanisms to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS. While project-level decisions are being made that can move habitat toward this goal in the no-action alternative, no regulatory mechanisms (i.e., management direction) would be added to the plans. Since the lack of regulatory mechanisms was identified as one of the threats to the species, the no-action alternative (current plans and direction) would not meet the need.

The no-action alternative represents the baseline for analysis. The current plans and direction are the baseline—the direction we follow for every project proposed in the amendment area. The no-action alternative allows us to address both of the key issues. It represents the current level of access and the

current state of the economy. Any changes from those current states can then be used to measure the amount of departure that would result from the proposed amendment.

Alternatives B and C: Goals, Objectives, Standards and Guidelines

Table 2-3 and table 2-4 provide the detailed goals and objectives, and standards and guidelines for the two action alternatives. Table 2-6 lists monitoring indicators by management question.

Goals and objectives are developed to help the land management agency verbalize the long-term intent of the planning action and provide a means for measuring success moving toward the goals. These goals and objectives can apply to either the proposed action or the alternative to the proposed action. They are displayed in (table 2-3) as a set to provide the reader with an idea of what the standards and guidelines in the following table are intended to achieve over time. Goals 1, 2, and 3 were included in the DEIS published in August 2013. Goals 4 (a, b, and c), and 5 were identified during preparation of the alternative to the proposed action to address the habitat restoration needs of the project area as they specifically relate to the increasing threat of wildfires and the role of invasive annual grasses.

Some objectives are repeated. Objective 1a for instance can be used to measure success toward meeting goal 1 and goals 4a, and 5. If these were to be assigned to alternatives, just goals 1, 2, and 3 would be assigned to the proposed action (modified) and all goals 1, 2, 3, 4a, 4b, and 5 would be assigned to the more conservation oriented alternative (alternative C).

Alternatives B and C: Monitoring

Alternatives B and C would include monitoring questions and indicators as described in table 2-6. Implementation of the amendment would include development of a monitoring technical guide. The monitoring technical guide would include details about methods or protocols to monitor the indicator. Changes to the guide would be made as necessary to maintain effectiveness and efficiency of the monitoring for the monitoring questions and indicators. The monitoring technical guide would not be part of the land use plans, and therefore, could be changed without a plan amendment or administrative change.

Goals and objectives are developed to help the land management agency verbalize the long-term intent of the planning action and provide a means for measuring success toward meeting the goals. These goals and objectives can apply to either the proposed action or the alternative to the proposed action. They are displayed in table 2-3 as a set to provide the reader with an idea of what the standards and guidelines in the following table are intended to achieve over time. Goals 1, 2, and 3 were included in the DEIS published in August 2013. Goals 4 (a, b, and c), and 5 were identified during preparation of the alternative to the proposed action to address the habitat restoration needs of the project area as they specifically relate to the increasing threat of wild fires and the role of invasive annual grasses.

Some objectives are repeated. Objective 1a for instance can be used to measure success toward meeting goal 1 and goals 4a, and 5.

Table 2-4 lists standards and guidelines for alternatives B and C, compared to alternative A (no action). *Note:* The unique identifier of each standard and guideline follows a protocol. The protocol is: alternative–resource–standard or guideline–unique number. For example, B-AR-G-01 means, alternative B–access/recreation–guideline-01.

Table 2-3. Goals and objectives for alternatives B and C

Goal 1: Bi-state DPS priority habitat and movement corridors are managed to bring vegetation communities to their ecological site potential and to maintain or increase the species.
Objective 1a: By 2024, 200,000 acres of degraded habitat (i.e., areas with conifer encroachment, invasive annual grasses, and/or altered fire regimes) have been improved through changes in management or restoration activities to meet habitat objectives.
Objective 1b: By 2024, Bi-state DPS populations will be at or above current levels.
Goal 2: Bi-state DPS and habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.
Objective 2a: By 2020, Bi-state DPS productivity, survival, or use of seasonal habitats will be at least at the same level as they are in 2014.
Objective 2b: By 2019, water developments (tanks and troughs) on national forest system lands and BLM public lands will be designed or retrofitted to decrease the risks of drowning or disease or as breeding sites for vectors such as mosquitos.
Objective 2c: Saleable mineral pits determined to be no longer in use shall be reclaimed by the operator to meet sage grouse conservation objectives within 5 years of such determination.
Goal 3: In priority habitat, fuels treatments are used as a management tool when the benefits to Bi-state DPS clearly outweigh the risks; otherwise fire is suppressed in priority habitat after life and property.
Objective 3a: By 2024, proactive fire prevention treatments will have been implemented in or adjacent to 30 percent of the identified priority habitat.
Objective 3b: By 2019, risk of unwanted fire in habitat shall be 20 percent lower compared to conditions in 2014.
Goal 4a: Areas at risk of conversion to a degraded, disturbed, or invaded state are declining in size and distribution.
Objective 1a: By 2024, 200,000 acres of degraded habitat (i.e., areas with conifer encroachment, invasive annual grasses, and/or altered fire regimes) have been improved through changes in management or restoration activities to meet habitat objectives.
Goal 4b: Reduction of fuel loads has reduced the risk of high severity fires in Bi-state DPS habitat.
Objective 4b: Over the next 10 years areas with annual invasive grass dominance are reduced across 20,000 acres of habitat.
Goal 4c: Bi-state DPS habitat has moderate to high resilience to disturbance and resistance to invasive annual grasses.
Objective 4b: Over the next 10 years areas with annual invasive grass dominance are reduced across 20,000 acres of habitat.
Goal 5: Over the next 25 years, areas with ≥25–65% and areas with >65% sage brush cover are increasing through the implementation of integrated restoration strategies.
Objective 1a: By 2024, 200,000 acres of degraded habitat (i.e., areas with conifer encroachment, invasive annual grasses, and/or altered fire regimes) have been improved through changes in management or restoration activities to meet habitat objectives.
Objective 4b: Over the next 10 years areas with annual invasive grass dominance are reduced across 20,000 acres of habitat.
Objective 5a: Over the next 10 years manage or restore habitat so that at least 70% of the land cover provides adequate sagebrush habitat to meet sage grouse needs to maintain or increase current populations.

Table 2-4. Standards and guidelines for alternatives B and C, compared to alternative A (no action)

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
All Resources	No existing direction.	***B-S-01:** Project should include best management practices for each resource as appropriate to restore, conserve, and enhance Bi-state DPS and its habitat.	***C-S-01:** Project should include best management practices for each resource as appropriate to restore, conserve, and enhance Bi-state DPS and its habitat.
Access/ Recreation	Access is managed through travel management plans and interim direction for minimizing impacts to Bi-state DPS.	***B AR-G-01:** Use existing roads and co-locate powerlines, pipelines, and other linear features whenever possible to reduce disturbance and habitat fragmentation.	**C-AR-G-01:** Use existing developed routes to provide access.
	No existing direction.	**B-AR-G-02:** Authorize new roads only when necessary for public safety, administrative, or public need to accommodate valid existing rights.	***C-AR-S-01:** Authorize new roads only when necessary for public safety, administrative, or public need to accommodate valid existing rights up to 3% total anthropogenic disturbance limit.
	Motor vehicle use is managed under travel management plans. The BLM allows cross-country travel in a portion of the planning area.	***B-AR-S-01:** Motor vehicle use off designated national forest system roads and trails is prohibited.	**C-AR-S-02:** Motor vehicle use off designated national forest system roads and trails or existing roads and trails is prohibited.
	No existing direction.	***B-AR-S-02:** Manage as limited to existing roads, primitive roads, and trails for motorized travel until subsequent route designation occurs.	Same as alternative B.
	Off-highway vehicle events are permitted using existing direction designed to reduce impacts to resources. Permits are granted on a case-by-case basis after environmental analysis.	***B-AR-S-03:** Between March 1 and May 15, off-highway vehicle events that pass within a 0.25 mile of an active lek shall only take place during daylight hours after 10 am.	**C-AR-S-03:** Do not authorize off-highway vehicle events.
	No existing direction.	***B-AR-S-04:** Do not authorize off-highway vehicle events within winter habitats November 1 to March 1.	Same as C-AR-S-03.
	No existing direction.	***B-AR-S-05:** Prohibit new recreation facilities unless they will have a neutral or beneficial effect to Bi-state DPS up to 3% total anthropogenic disturbance limit.	***C-AR-S-04:** Prohibit new recreation facilities in Bi-state DPS habitat (e.g., campgrounds, day use areas, scenic pullouts, trailheads, etc.).

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
Land Use/Special Use	New rights-of-way are permitted after environmental analysis. Co-location could be required depending on site-specific issues and potential impacts.	***B-LUSU-G-01:** Co-locate new rights-of-way within and/or adjacent to existing rights-of-way.	Same as alternative B.
	No existing direction.	No proposed additions.	***C-LUSU-S-01:** Do not grant new rights-of-way. If valid existing rights apply, co-locate new rights-of-way within existing rights-of-way or where it minimizes impacts to Bi-state DPS habitat.
	No existing direction.	***B-LUSU-G-02:** Industrial wind facilities associated with existing industrial infrastructure (e.g., a mine site) may be authorized to provide onsite power generation.	***C-LUSU-S-02:** Do not authorize utility-scale commercial wind energy facilities.
	Lands special use proposals are analyzed through site-specific environmental analysis. Stipulations are included to minimize impacts to resources.	***B-LUSU-G-03:** Industrial solar energy facilities associated with existing industrial infrastructure (e.g., a mine site) may be authorized to provide on-site power generation.	***C-LUSU-S-03:** Do not authorize utility-scale solar energy facilities.
	No existing direction.	**B-LUSU-S-01:** Do not install structures or powerlines taller than the surrounding vegetation that could serve as predator perches within 2 miles of a lek.	***C-LUSU-S-04:** Do not install structures or powerlines taller than the surrounding vegetation that could serve as predator perches within 4 miles of an active lek.
	No existing direction.	***B-LUSU-S-02:** No structures taller than the surrounding vegetation that could serve as predator perches shall be installed unless they are equipped with anti-perching devices.	Same as alternative B.
	No existing direction.	***B-LUSU-S-03:** Federal lands shall be retained unless a public interest determination identifies a net benefit to Bi-state DPS habitat.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	Outfitter-guide activities are permitted on a case-by-case basis through environmental analysis. Stipulations may be included which are designed to minimize impacts to resources.	***B-LUSU-S-04:** Do not authorize outfitter-guide activities that occur within 0.25 mile of active leks from March 1 to May 15.	**C-LUSU-S-05:** Do not authorize outfitter-guide activities that occur within 4 miles of active leks from March 1 to May 15.
	No existing direction.	***B-LUSU-S-05:** Land acquisition plan shall include all inholdings that include Bi-state DPS habitat within national forest system boundaries.	Same as alternative B.
	Most permits have language that authorizes the use, maintenance, and removal of improvements. Where the right-of-way itself is a historic feature, or the reclamation work may have additional unwanted adverse effects that outweigh the benefits, reclamation is not required.	***B-LUSU-S-06:** When informed that a right-of-way is no longer in use, relinquish the right-of-way and reclaim the site by removing powerlines, reclaiming roads, and removing other infrastructure, where such reclamation work does not have unwanted adverse effects.	Same as alternative B.
	Special use permits are issued on a case-by-case basis after environmental analysis, and may include stipulations to mitigate impacts to resources.	***B-LUSU-S-07:** Require proper containment and prompt removal of refuse to avoid attracting predators.	**C-LUSU-S-6:** Require proper containment and prompt removal of refuse to avoid attracting predators.
	The authorized officer has the ability to change stipulations of existing permits.	***B-LUSU-G-04:** Require permit holders to retro-fit existing powerlines and other utility structures with perch-deterring devices during right-of-way renewal process.	**C-LUSU-S-07:** Require permit holders to retro-fit existing powerlines and other utility structures with perch-deterring devices during right-of-way renewal process.
	Permits for lands special uses are completed using site-specific environmental analysis.	**B-LUSU-S-08:** Do not install structures or powerlines taller than the dominant surrounding vegetation that could serve as predator perches within 2 miles of a lek.	***C-LUSU-S-8:** Do not install structures or powerlines taller than the dominant surrounding vegetation that could serve as predator perches within 4 miles of an active lek.
	No existing direction.	***B-LUSU-S-09:** Do not install structures greater than 8-feet tall that could serve as predator perches unless they are equipped with anti-perching devices.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	**B-LUSU-G-05:** Authorize new communication sites as long as development incorporates appropriate required design features in design and construction (e.g., noise, tall structure, seasonal restrictions, etc.) and development results in no net un-mitigated loss of habitat.	***C-LUSU-S-09:** Do not authorize new communication sites.
	Permits involving powerlines are issued on a case-by-case basis after environmental analysis. Burial of powerlines may be required on a site-specific basis.	***B-LUSU-G-06:** Where feasible, bury powerlines to reduce overhead perches.	***C-LUSU-S-10:** Where feasible, bury powerlines to reduce overhead perches.
Wildlife	Humboldt-Toiyabe National Forest: The following standards apply to sage grouse habitats (Forest S&G Range PG IV-49 S&G 27).	***B-Wild-S-01:** Any vegetation treatment shall maintain, improve, or restore Bi-state DPS habitat.	Same as alternative B.
	▪Use dropping casts, sage grouse sightings, and historical records to reveal location and importance of Bi-state DPS habitat.	No proposed additions.	No proposed additions.
	▪Maintain 20 to 55% canopy cover on Bi-state DPS range.	No proposed additions.	No proposed additions.
	▪Use irregularly designed patterns when manipulated brush in Bi-state DPS habitat.	No proposed additions.	No proposed additions.
	▪Maintain meadows in Bi-state DPS range in high ecological status. Where meadows have lost their natural characteristics because of lowered water table, trampling, overgrazing, road building, or for other reasons, take measures to restore the meadows.	No proposed additions.	No proposed additions.
	▪Maintain desirable sagebrush habitat within 2 miles of leks.	No proposed additions.	No proposed additions.
	▪Retain irregular, lean strips of untreated sagebrush approximately 100 yards wide adjacent to stream bottoms and meadows.	No proposed additions.	No proposed additions.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	▪Include the use of a combination of forbs and grasses desirable to Bi-state DPS when rehabilitating sage grouse habitat.	***B-Wild-G-01:** Use seed for perennial grasses and forbs adapted to local conditions to increase cover of these species.	***C-Wild-S-02:** Vegetation treatments and post-disturbance restoration shall seed and/or transplant sagebrush to restore large patches of sagebrush cover and connect existing patches.
	Humboldt-Toiyabe National Forest: Manage ecosystems containing sensitive plant and animal and threatened and endangered animal populations to maintain or increase these populations and to achieve recovery (Forest S&G Range PG IV-49 S&G 4).	**B-Wild-S-02:** When long-term negative impacts from nondiscretionary actions are unavoidable, require mitigations to result in no net loss of habitat.	***C-Wild-S-03:** Require site-specific project mitigation if needed to insure no net loss of habitat due to project disturbance.
	Same as above.	***B-Wild-S-03:** Habitat restoration projects shall meet one or more of the following habitat needs: Promote the maintenance of large, intact sagebrush communities; limit the expansion or dominance of invasive species, including cheatgrass; maintain or improve soil site stability, hydrologic function, and biological integrity; and enhance the native plant community.	**C-Wild S-04:** Total anthropogenic disturbances shall affect no more than 3% of the total Bi-state DPS habitat on Federal lands within the Bodie Mountain/Grant, Desert Creek/Fales, and White Mountains population management unit boundaries.
	Humboldt-Toiyabe National Forest: Improve habitat for threatened or endangered species, and sensitive species that have been adversely affected by man's activity in wilderness areas (Forest S&G Range PG IV-50 S&G 6).	*Same as B-Wild-S-03.	**C-Wild S-05** Total anthropogenic disturbances shall affect no more than 1.5% of the total Bi-state DPS habitat on Federal lands within the Pine Nut Mountains Population Management Unit boundaries.
	Humboldt-Toiyabe National Forest: Manage habitats of wolverine, Mount Lyell salamander, yellow warbler, and other wildlife species that may have declining populations or narrow habitat requirements, to assure viable populations and reasonable distributions. Encourage surveys and other data gathering activities for these species (Forest S&G Range PG IV-50 S&G 9).	***B-Wild-S-04:** Time implementation of habitat restoration projects so they cause the least disturbance to Bi-state DPS individuals and populations as possible.	Same as C-Wild-S-04.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	When possible, native seed is used based on availability and probability of success and site potential.	***B-Wild-G-02:** When re-seeding use genetically and climatically appropriate and certified weed-free plant and seed material. Use native seed when available.	**C-Wild S-06:** When re-seeding use genetically and climatically appropriate and certified weed-free plant and seed materials. Use native seed when available.
	Carson City District: BLM will adhere to current habitat modification guidelines prepared by the Western Sage Grouse Committee of the Western Association of Fish and Wildlife Agencies.	***B-Wild-S-05:** Mitigate long-term negative impacts from discretionary or nondiscretionary activities to the extent practicable.	Same as C-Wild-S-03.
	Battle Mountain District: Activities in key fish and wildlife areas will, when necessary, be restricted during periods of breeding, nesting, spawning, lambing, or calving activity, and during major migrations of fish and wildlife.	***B-Wild-S-06:** Require buffers, timing limitations, or offsite habitat restoration for new or renewed discretionary actions to mitigate potential long-term negative impacts.	Same as C-Wild-S-03.
	Battle Mountain District: Fish and wildlife habitat will continue to be evaluated as part of project-level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of fish and wildlife habitat in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for fish and wildlife habitat. Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition. Such projects will be identified through habitat management plans or other activity plans.	***B-Wild-S-07:** After soil disturbances or seeding, do not authorize soil-disturbing uses for a minimum of two annual growing cycles or until desired habitat conditions have been met, whichever is longer.	Same as C-Wild-S-04 and C-Wild S-05.
	Battle Mountain District: Sufficient forage and cover will be provided for wildlife. Forage and cover requirements will be incorporated into allotment management plans or their functional equivalent and will apply to specific areas of primary wildlife use.	Same as C-Wild-G-01.	***C-Wild-G-01:** Restore native (or desirable) plants and create landscape patterns which most benefit the Bi-state DPS.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	Same as C-Wild-G-02.	***C-Wild-G-02:** Consider seed collection from the warmer component of the species current range when selecting native species for restoration (Kramer and Havens 2009).
	No existing direction.	Same as C-Wild-G-03.	***C-Wild-G-03:** Remove phase 1 and 2 pinyon-juniper located near meadows and leks during habitat restoration projects.
	Battle Mountain District: Habitats for chukar and other upland game will be maintained and expanded through development of wildlife waters. Generally, no land disposal will be allowed within 2 miles of Bi-state DPS nesting areas.	No proposed additions.	No suggested changes.
Range: Permitting	Forest Service and BLM grazing management is focused on achieving healthy rangelands, but no specific standards for Bi-state DPS habitat objectives are used.	***B-RP-S-01:** Grazing permits, annual operating instructions, or other appropriate mechanism for livestock management shall include terms, conditions, and direction to move toward or maintain Bi-state DPS habitat desired conditions.	**C-RP-S-01:** Grazing allotments containing Bi-state DPS habitat shall be closed to livestock grazing.
Range: Utilization Standards	Utilization standards have been established for Forest Service grazing allotments. The standards vary widely across the districts.	***B-RU-S-01:** Manage livestock grazing to maintain residual cover of herbaceous vegetation so as to reduce predation during breeding/nesting season (March 1 to June 30) within 3 miles of active lek sites.	Same as C-RP-S-01.
	No existing direction.	***B-RU-S-02:** Manage livestock grazing in accordance with the utilization standards in table 2-5.	Same as C-RP-S-01.
Range: Improve-ments (All)	No range improvement standards specific to Bi-state DPS habitat exist.	***B-RI-S-01:** Remove fences and other infrastructure associated with livestock grazing negatively impacting Bi-state DPS and its habitats.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	***B-RI-S-02:** Any new structural range improvements and location of supplements (salt or protein blocks) shall not retard the conservation, enhancement, or restoration of Bi-state DPS habitat.	Same as C-RP-S-01.
Range: Improve-ments (Fences)	No range improvement standards specific to Bi-state DPS habitat exist.	***B-RI-S-03:** No new structures taller than the dominant surrounding vegetation that could serve as predator perches shall be installed within 2 miles of a lek.	Same as C-RP-S-01.
	No existing direction.	***B-RI-G-01:** To the extent possible, do not install fences unless to protect habitat or for human health and safety. If fences must be installed, they should be at least 2 miles from active leks, and if possible, should be let-down fences when not needed for the purpose of their installation.	Same as alternative B.
	No existing direction.	***B-RI-S-04:** To reduce Bi-state DPS mortality, remove, modify, or mark fences in sage grouse habitat based on nearest proximity to lek, lek size, and topography where fence densities exceed 1.6 miles of fence per section (640 acres).	Same as alternative B.
Range: Improve-ments (Water)	No range improvement standards specific to Bi-state DPS habitat exist.	***B-RI-S-05:** Water developments (tanks/troughs) shall be drained when not in use, unless they are needed by other species, so they do not create a breeding ground for mosquitos that carry West Nile Virus.	Same as alternative B.
	No existing direction.	***B-RI-S-06:** Wildlife escape ramps shall be installed and maintained in water troughs or open water facilities with vertical embankments that pose a drowning risk to birds.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	***B-RI-S-07:** Water developments at springs and seeps shall be maintained to preserve the continuity of predevelopment riparian areas. Modifications to the developments shall be neutral or beneficial to the Bi-state DPS.	Same as alternative B.
	No existing direction.	***B-RI-G-02:** Authorize new water development for diversion from spring or seep source only when habitat would benefit from the development.	Same as alternative B.
Range: Improve-ments (Water/ Handling)	No range improvement standards specific to Bi-state DPS habitat exist.	***B-RI-S-08:** Livestock watering and handling facilities (corrals, chutes, dipping vats, etc.) or sheep bedding grounds shall not be located within 2 miles of an active lek and 0.6 miles from riparian areas.	Same as C-RP-S-01.
	No existing direction.	***B-RI-S-09:** Salting or supplemental feeding stations shall not be located within 2 miles of an active lek and 0.6 miles from riparian areas.	Same as C-RP-S-01.
Range: Improve-ments (Handling)	No range improvement standards specific to Bi-state DPS habitat exist.	***B-LUSU-S-10:** No structures greater than 8-feet tall that could serve as predator perches shall be installed within Bi-state DPS habitat unless they are equipped with anti-perching devices.	**C-RI-S-01:** Remove all range improvements greater than 8-feet tall that could serve as predator perches within Bi-state DPS habitat.
Weeds	Current BLM- and Forest Service-integrated pest management plans allow for the use of biological pest controls that could include the use of domestic livestock.	***B-Weed G-01:** Grazing may be used to target removal of cheatgrass or other vegetation hindering Bi-state DPS objectives. Sheep, goats, or cattle may be used as long as the animals are intensely managed and removed when the utilization of desirable species reaches 35%.	Same as alternative B.
	No existing direction.	No proposed additions.	***C-Weed-S-01:** Fires in moderate to low resilience and resistance sagebrush and wooded shrublands shall be suppressed to prevent an invasive annual grass-fire cycle.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	Allow no livestock grazing for two grazing seasons after prescribed or natural fires and plantings or seedings.	***B-Weed-S-01:** After soil disturbances or seeding, the land shall not be returned to soil-disturbing authorized uses for a minimum of two annual growing cycles or until desired habitat conditions have been met, whichever is longer.	Same as C-RPS-01.
	No existing direction.	No proposed additions.	***C-Weed-S02:** Treatment methodologies are based on the treatment areas' resistance to annual invasive grasses and the resilience of native vegetation to respond after disturbance: (1) use mechanical treatments (i.e., do not use fire) in areas with relatively low resistance to annuals, and (2) treat areas in early- to mid-phase pinyon-juniper expansion.
	No timing restrictions or chemical restrictions are currently in place within Bi-state DPS habitats.	***B-Weed-S-02:** Use pesticides/herbicides only outside of the critical disturbance periods and only if other integrated pest management approaches are inadequate or infeasible. Only use chemicals with the lowest toxicity to birds that still provide control in coordination with USDA or APHIS, depending of the targeted pest.	Same as alternative B.
	No existing direction.	***B-Weed-S-03:** Agency personnel, contractors, and permit holders working in areas with known weed infestations shall clean vehicles of dirt, mud, and visible plant debris before entering a different area to reduce the spread of noxious weeds.	Same as alternative B.
	No existing direction.	No proposed additions.	***C-Weed-S03:** Annual invasive grasses shall be controlled or suppressed using an integrated strategy.
	No existing direction.	No proposed additions.	***C-Weed-G-01:** Require aggressive treatment of new weed or annual grass infestation for any surface-disturbing or other activity that is likely to cause or promote the introduction or infestation.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
Wild Horse/ Burro	Forest Service and BLM wild horse and burro management is focused on achieving healthy rangelands, but no specific standards for Bi-state DPS habitat objectives are used.	***B-WHB-S-01:** Appropriate management level in herd management areas with habitat shall be based on the structure, condition, and composition of vegetation needed to achieve Bi-state DPS habitat objectives.	Same as alternative B.
Minerals General	Application of standards and guidelines to mineral resource management is subject to valid existing rights and in some cases technical feasibility. For instance, not all pipelines can be buried for technical reasons; and not all drilling operations can be conducted using a closed-loop system.		
	No existing direction.	***B-Min-S-01:** For new and existing leases in habitat, limit offsite noise to less than 10 decibels (dbA) above ambient measures from 2 hours before until 2 hours after at sunrise at the perimeter of a lek during active lek season.	Same as alternative B.
	No existing direction.	**B-Min-S-02:** In habitat, limit offsite noise to less than 10 decibels (dbA) above ambient measures from 2 hours before until 2 hours after at sunrise at the perimeter of a lek during active lek season.	Same as alternative B.
	No existing direction.	***B-Min-S-03:** Apply timing restrictions in all Bi-state DPS habitat areas to avoid construction, drilling, completion, and reclamation activities, including those of exploratory wildcat wells within seasonal habitat periods.	Same as alternative B.
	No existing direction.	***B-Min-G-01:** Concentrate disturbance/facilities to reduce spatial impact to habitat.	Same as alternative B.
	No existing direction.	**B-Min-G-02:** In connective area, maintain vegetation characteristics suitable to Bi-state DPS to the extent technically feasible.	***C-Min-S-01:** In connective area, maintain vegetation characteristics suitable to Bi-state DPS to the extent technically feasible.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	**B-Min-G-03:** Control fugitive dust on roads and pads.	***C-Min-S-02:** Control fugitive dust on roads and pads.
	No existing direction.	***B-Min-S-04:** Require a full reclamation bond specific to the site. Insure bonds are sufficient for costs relative to reclamation that would result in full restoration in habitat.	Same as alternative B.
	No existing direction.	**B-Min-G-04:** Use areas with prior disturbance to site infrastructure.	***C-Min-S-03:** Use areas with prior disturbance to site infrastructure.
	No existing direction.	**B-Min-S-05:** Where the Federal government owns the mineral estate, and the surface is in non-Federal ownership, apply the conservation measures applied on Federal surface ownership to the non-Federal lands.	Same as alternative B.
	No existing direction.	**B-Min-S-06:** Camps for workers shall be located outside habitat.	Same as alternative B.
Fluid Minerals	No leasing decision has been analyzed for Forest Service lands. BLM has made a leasing decision.	**B-Min-G-05:** Limit disturbances to an average of one site per 640 acres on average, with no more than 3% total anthropogenic surface disturbances.	***C-Min-S-04:** For fluid minerals do not consent to leasing unless only under no-surface-occupancy stipulations.
	For geothermal BLM has a 2008 EIS making leasing decisions on most lands. This lease contains lands which have been identified as Bi-state DPS brood rearing areas subject to seasonal protection from disturbance. Seasonal restrictions from disturbance in Bi-state DPS brood rearing areas apply within 0.5 miles or other appropriate distance based on site-specific conditions from May 15 to August 15, inclusive. This restriction does not apply to operating facilities. Also, the interim IMs that address sage grouse prior to the planning decision are also applicable.	***B-Min-S-07:** Require seasonal restriction November 1 to March 1 on geophysical exploration within winter habitats.	Same as alternative B.
	No existing direction.	***B-Min-G-06:** Allow geophysical exploration to obtain exploratory information for areas outside of and adjacent to habitat.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	***B-Min-S-08:** Require reclamation for geophysical exploration operations to meet Bi-state DPS desired conditions.	Same as alternative B.
	No existing direction.	***B-Min-S-09:** Apply the least invasive seismic exploratory method in habitat.	Same as C-MIN-S-04.
	The BLM has completed a leasing decision for oil & gas for the BLM lands in the study area; however, there are no authorized oil & gas leases in the study area and there is no oil & gas leasing decision on the Forest Service lands.	***B-Min-G-07:** Incorporate mitigation to offset all proposed surface disturbance that would result in loss of habitat. Mitigate first within the same population area where the disturbance is realized, and if not possible, within an adjacent habitat.	Same as C-MIN-S-04.
	No existing direction.	***B-Min-G-08:** If the lease is entirely within the habitat any development should be placed in an area that would be the least harmful to Bi-state DPS.	Same as alternative B.
	No existing direction.	**B-Min-G-09:** All commercial pipelines should be buried where possible.	***C-Min-S-5:** All commercial pipelines should be buried where possible.
	No existing direction.	No proposed additions.	***C-Min-S-06:** Upon expiration or termination of existing leases, do not consent to leasing if inquired by the BLM.
	No existing direction.	***B-Min-S-10:** Require reclamation of disturbed areas to meet desired conditions for habitat when facilities are no longer needed or leases are relinquished.	Same as alternative B.
	No existing direction.	**B-Min-G-10:** Use closed-loop systems for drilling operations, with no reserve pits when technically feasible.	***C-Min-S-07:** Use closed-loop systems for drilling operations, with no reserve pits when technically feasible.
	No existing direction.	**B-Min-G-11:** Use noise shields when drilling during the lek, nesting, brood-rearing, and wintering seasons.	***C-Min-S-08:** Use noise shields when drilling during the lek, nesting, brood-rearing, and wintering seasons.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	**B-Min-S-11:** Do not authorize construction of new high-power transmission towers unless there are no other corridor options.	***C-Min-S-09:** Do not authorize new high-power transmission line corridors, transmission line rights-of-way, transmission line construction, or transmission line facility construction in habitat.
	No existing direction.	**B-Min-S-12:** Transmission towers must be constructed with anti-perching devices to discourage use by raptors.	Not applicable as a result of C-Min-S-03.
	No existing direction.	**B-Min-S-13:** Do not authorize new fences unless necessary for safety or environmental protection reasons. If fences are necessary, require a safe design for Bi-state DPS (e.g., marking).	Same as alternative B.
	No existing direction.	***B-Min-S-14:** Require removal of transmission lines and roads that are no longer needed.	Same as alternative B.
Solid Leasable Minerals:	No existing direction.	**B-Min-G-12:** Incorporate noise reduction design elements for new compressor stations.	***C-Min-S-10:** Do not authorize new compressor stations inside habitats.
	No existing direction.	No proposed additions.	***C-Min-S-011:** Do not consent to solid mineral lease in habitat.
	Mineral materials can be disposed and must follow the BLM IM interim management direction.	**B-Min-G-13:** Request that the BLM not authorize new mine facilities on the surface unless there is no technically feasible alternative.	***C-Min-S-12:** Request that the BLM not issue permits for solid leasable mineral prospecting or mining in habitat.
		***B-Min-G-14:** If new mine facilities must be placed in habitat, then co-locate facilities in existing disturbed areas and authorize them to the minimum size necessary.	Same as alternative B.
Minerals: Mineral Materials	No existing direction.	***B-Min-S-15:** Do not authorize new pits or prospecting permits in Bi-state DPS habitat.	**C-Min-S-13:** Do not allow new sale of mineral materials in habitat.
		***B-Min-S-16:** Authorize mineral material use and expansion of existing pits only with no unmitigated net loss of habitat.	**C-Min-S-14:** Prohibit expansion of existing mineral material sites.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	No existing direction.	***B-Min-S-17:** Permits for mineral material sites shall require an approved pit development operating plan that minimizes impacts to Bi-state DPS and other resources	**C-Min-S-15:** Do not allow new sale of mineral materials in Bi-state DPS habitat.
Mineral Materials	No existing direction.	***B-Min-S-18** Any contract or permit for mineral material operations, except for disposals from community sites and common-use areas, shall include requirements for reclamation of the site to meet Bi-state DPS habitat objectives.	Same as C-MIN-S-15.
	No existing direction.	***B-Min-S-19** Ensure no net unmitigated loss at existing mineral material sites in habitat.	**C-Min-S-17:** Prohibit expansion of existing mineral material sites.
	No existing direction.	**B-Min-S-20:** Where the Federal government owns the surface, and the mineral estate is in non-Federal ownership, require an approved pit development plan.	Same as alternative B.
Locatable Minerals	Outside of wilderness, wilderness study areas, and withdrawn areas, the mineral estate is locatable. On BLM lands with unpatented mining claims, projects can be proposed. On Forest Service land no unpatented claims are necessary as long as the land is open to entry. BLM minerals are handled under 43 CFR 3809 and Forest Service minerals under 36 CFR 228 subpart A.	***B-Min-S-21:** Mitigate long-term negative impacts in habitat from discretionary or nondiscretionary activities to the extent practicable.	**C-Min-S-18:** Petition the BLM to withdraw locatable minerals.
Fire Suppres-sion	Use planned and unplanned ignitions to restore natural ecosystems in wilderness and other areas where appropriate.	***B-Fire-G-01:** Do not use fire as a management tool in areas where the risk of escaped fire could cause negative long-term impacts.	***C-Fire-S-01:** Fires in moderate to low resilience and resistance sagebrush and wooded shrublands shall be suppressed to prevent an invasive annual grass-fire cycle.
	All wildfires will receive an appropriate suppression response.	***B-Fire-G-02:** In Bi-state DPS habitat areas, prioritize suppression, immediately after life and property, to conserve the habitat.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
	Appropriate responses are confinement, containment, or control.	***B-Fire-G-03:** Suppress wildfire threatening unburned habitat contained within a broader burn perimeter.	***C-Fire-G-01:** Vegetation treatments should include fuel breaks to provide anchor points for wildland fire suppression to protect areas meeting or moving toward desired conditions.
Suppression in Wildland-Urban Interface	All wildfires will receive an appropriate suppression response. Appropriate responses are confinement, containment, or control.	***B-Fire-G-04:** Prioritize suppression in the wildland-urban interface to protect life and property over habitat.	Same as alternative B.
Fuels Treatments in Sagebrush	Natural fuel treatment projects will meet multi-resource objectives.	**B-Fire-G-05:** Fuels treatments should emphasize protecting existing sagebrush ecosystems.	***C-Fire-G-02:** Use fuel breaks and green strips to protect areas with >25% landscape sagebrush cover.
	No existing direction.	**B-Fire-S-01:** Fuels treatment projects shall not reduce sagebrush canopy cover to less than 15% of the treatment unit unless needed to meet fire management/protection objectives.	***C-Fire-S-02:** Do not reduce sagebrush canopy cover to less than 15% (Connelly et al. 2000; Hagen et al. 2007) unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of Bi-state DPS habitat and conserve habitat quality for the species.
	No existing direction.	***B-Fire-G-06:** Do not use fire, including brush control, as a management tool in areas where there is threat of cheatgrass invasion, sagebrush areas with less than 12 inches of annual precipitation or 12 inches of soil, or areas where the sagebrush cover would be reduced to less than 15%.	Same as alternative B.
	No existing direction.	***B-Fire-G-07:** Focus fuels management projects in habitat to reduce wildfire threats.	Same as alternative B.
	No existing direction.	**B-Fire-S-02:** Enhance and restore habitat while reducing the potential for severe wildfires in habitat.	Same as alternative B.

Resource	Alternative A (No Action)	Alternative B (Modified)	Alternative C
Prescribed Fire	No existing direction.	No proposed additions.	***C-Fire-G-03:** Treatment methodologies are based on the treatments areas resistance to annual invasive grasses and the resilience of native vegetation to respond after disturbance: (1) use mechanical treatments (i.e., do not use fire) in areas with relatively low resistance to annuals, and (2) treat areas in early- to mid-phase pinyon-juniper expansion.
	Use planned, prescribed fire to improve or enhance resource outputs where appropriate.	**B-Fire-G-08:** Post-fuels management projects should ensure long-term persistence of seeded or pre-treatment native plants and to maintain the desired condition of fuels management projects.	***C-Fire-G-04:** Manage post-treatment areas to increase perennial herbaceous species and minimize secondary weed invasion.
	No existing direction.	***B-Fire-G-09:** Do not use fire as a management tool in areas where the risk of escaped fire could cause negative long-term impacts.	***C-Fire-G-05:** Vegetation treatments and post-disturbance restoration should seed and/or transplant sagebrush to restore large patches of sagebrush cover and connect existing patches.
	No existing direction.	**B-Fire-G-10:** Where cheatgrass is a minor component in the understory (example; mountain shrub) use prescribed fire to disrupt fuel continuity (fuel breaks).	***C-Fire-G-06:** Use seed for perennial grasses and forbs adapted to local conditions to increase cover of these species.
	No existing direction.	No proposed additions.	***C-Fire-S-03:** Annual invasive grasses shall be controlled or suppressed using an integrated strategy.

Note: An * by a standard or guideline indicates that it has been selected as part of the draft preferred alternative for this project.

Table 2-5. Forage utilization standards for Bi-state DPS habitat

Community Type	Percent Utilization of Key Species	Terms and Conditions
Mountain Big Sagebrush	<45% herbaceous species; <35% shrub species	Livestock removed in 3 to 5 days of reaching utilization level
Wyoming and Basin Big Sagebrush	<35% herbaceous species; <35% shrub species	Livestock removed in 3 to 5 days of reaching utilization level
Black Sagebrush	<35% herbaceous species; <35% shrub species	Livestock removed in 3 to 5 days of reaching utilization level
Riparian and Wet Meadows	<50% herbaceous species; <35% woody species; or average stubble height of at least 4–6 inches (depending on site capability and potential) for herbaceous riparian vegetation	Average stubble height 4–6 inches: Livestock removed in 3 to 5 days of reaching utilization level based on site; or (sequential action) no grazing from May 15–August 30 in brood rearing habitat

Note: Monitoring would be conducted using accepted protocols (including but not limited to: Burton et al. 2011; BLM 1996; Platts 1990).

Sources: Holechek 1988; Holechek et al. 1998; Burton et al. 2011; BLM 1996; Platts 1990.

Alternatives B and C: Monitoring

Alternatives B and C would include monitoring questions and indicators as described in table 2-6. Implementation of the amendment would include development of a monitoring technical guide. The monitoring technical guide would include details about methods or protocols to monitor the indicator. Changes to the guide would be made as necessary to maintain effectiveness and efficiency of the monitoring for the monitoring questions and indicators. The monitoring technical guide would not be part of the land use plans, and therefore, could be changed without a plan amendment or administrative change.

Table 2-6. Monitoring indicators by management question

Management Question	Monitoring Indicator
1. Are the Humboldt-Toyiabe National Forest and BLM progressing toward the habitat goals for the Bi-state DPS?	■Miles, acres, and number of structures removed, installed, relocated, decommissioned, modified, or mitigated to benefit Bi-state DPS habitat. ■Number of discretionary use authorizations issued that included beneficial protective measures to Bi-state DPS and habitat. ▪ Acres of Bi-state DPS habitat altered by fire ▪ Acres of burned habitat reseeded or replanted ▪ Acres of vegetation treated to benefit Bi-state DPS ▪ Acres of treated vegetation that meet Bi-state DPS habitat objectives
2. Are the Humboldt-Toiyabe National Forest and BLM management progressing toward habitat goals maintaining or increasing the species?	■Number of Bi-state DPS leks.

Preferred Alternative

Regulations which provide direction for the preparation of environmental impact statements require that the agency's preferred alternative, or alternatives, be identified in the draft statement if one or more exists (CEQ 1502.14 (e)). The preferred alternative for this project includes the desired habitat conditions as identified in table 2-1 of the revised draft EIS, all of the goals and objectives as displayed in table 2-3 of the revised draft EIS, and the standards and guidelines as indicated in table 2-4 by the presence of an asterisk prior to the standard or guideline unique identifier. Based on comments and additional analysis, the preferred alternative is likely to change between the publication of the revised draft EIS and the preparation and publication of the final EIS and draft record of decision.

Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the proposed action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope to conserve, enhance, and/or restore habitat for the Bi-state DPS, duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

There were six alternatives considered, but eliminated from detailed study.

1) An alternative was considered that would change all standards in the proposed amendment into guidelines. This alternative was not considered because of how the definitions and applications of standards and guidelines differ. A standard is defined as a course of action that must be followed, or a level of attainment that must be reached to achieve Forest goals. Adherence to standards is mandatory. In general, they limit project-related activities, not compel, or require them. *A project or activity that deviates from a standard may be approved only if a Forest Plan amendment to change the standard is approved that would result in the project or activity being consistent with the Forest Plan.* Standards are developed when: applicable laws or policies do not exist, or clarification of existing laws or policies is needed, they are critical to achievement of objectives, or unacceptable impacts may occur if a standard is not in place.

In comparison, a guideline is also a course of action that must be followed. However, guidelines are applied to activities where site-specific factors may require some flexibility. *A project or activity that deviates from a guideline may be approved only if it is as effective in achieving the purpose for the guideline and documented in the appropriate approval document for the project or activity.*

Projects that are consistent with standards or guidelines would result in meeting the intent of the standard or guideline for conserving, enhancing, or restoring sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS. However, the deciding officer would have flexibility in how the project is designed under a guideline as long as its purpose can be achieved, but there is no flexibility under a standard. As discussed in the "Background" section, for the proposed amendment, in the 12-month finding, the USFWS expressed concern about the level of discretion that deciding officers have under the current land use plans in making decisions at the project level. Even while acknowledging regulatory mechanisms may exist, the USFWS viewed the level of discretion as allowing application of the mechanisms to vary, reducing their adequacy. A plan amendment that includes only guidelines and no standards would not address this USFWS concern about the level of discretion and consistency of

application, and therefore would not meet the purpose and need for the proposed amendment. Because of this, an amendment with only guidelines and no standards was not considered further.

2 & 3) Two alternatives were discussed involving the use of buffers. One would extend buffers for various conservation actions, and the other would limit/remove these buffers altogether. The original proposed amendment presented at the beginning of scoping had language about specific buffers for various potential actions. The standards and guidelines have since been rewritten to buffer habitat components instead of projects. By buffering habitat components the effects analysis becomes consistent across alternatives and is less speculative. Buffering projects would require a great deal of speculation in the analysis concerning the number, extent, and duration of different types of projects.

4) In the public comments several groups and individuals suggested that the agencies no longer allow certain types of activities to occur within the amendment area. Based on these public scoping comments the interdisciplinary team considered an alternative that would eliminate all discretionary actions within the amendment area. Discretionary actions are actions that the Forest Service is not required by law to consider. These include almost everything the agencies do, from the authorization of special use permits to cross national forest system lands, to planning and implementing projects to restore sagebrush habitat for the benefit of the Bi-state DPS.

This alternative was discussed as a way to illustrate the trade-offs of not allowing any discretionary actions to occur within the amendment area. The current land use plans allow for various types of resource management and recreation. Forest Service and BLM are multiple-use agencies by definition. An alternative that would practically eliminate all of those activities, regardless of relationship to the conservation of the Bi-state DPS, would be outside the scope and intent of the proposed amendment and would not meet the overall management goals and objectives for the amendment area and would not be consistent with multiple use.

5) An alternative was considered as the "habitat exclusion" alternative. A geographically based alternative was discussed that would redraw the habitat map to exclude areas that have a high degree of ongoing activity. Areas that would have been excluded from habitat include developed mine sites, areas with intense mineral exploration activity, areas with high recreation use, and areas with potential for geothermal lease and development. This alterative would have removed those habitat areas from the protections this proposed action offers. This alternative was eliminated from detailed consideration because it would have resulted in fragmentation to the habitat and would not meet the purpose and need of this proposal to conserve, enhance, and/or restore sagebrush and associated habitats of the Bi-state DPS, regardless of the habitat's relative location to various human activities.

6) An alternative was considered that was for the Nevada Enhancement Act only. This alternative was the same as the no-action alternative except for the application of Toiyabe Forest Plan general management direction and management area #6 Bridgeport Pinyon/Juniper-specific direction to enhancement act lands in the project area. The regulatory mechanisms for the conservation of Bi-state DPS would not have been included in the amendment. Because for the same reason as provided for the no-action alternative, this alternative would not meet the purpose and need for this project. In addition, the analysis would have been redundant with the no-action alternative because the management direction would be the same as that of the no-action alternative; therefore, this alternative was eliminated from detailed consideration.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in table 2-7 focuses on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2-7. Key and non-key issues comparison by alternative

Issue	Alternative A – No Action	Alternative B–Modified	Alternative C
Key Issues			
Access (Recreation and Special Uses)	*Recreation:* No change from current condition *Special Uses:* No change from current condition	Effects are expected to be minor to recreation and lands special uses. Conflicts from seasonal or locational restrictions may arise. Timing limitations and area avoidance buffers applied in early spring should not impact the majority of proponents. Those individuals or businesses could experience inconveniences and occasional financial burdens in order to adopt the stipulations required.	Effects of this alternative could range from minor to moderate depending on how invested an individual or business is in their proposal or existing event/development. Seasonal timing limitations and buffers may result in a proposed activity being delayed until after the timing limitation. Individuals or businesses with inflexible dates and locations for conducting events or activities could be inconvenienced by the standards proposed.
Economics	No change from current condition	Potential for adverse impacts due to implementation of standards and guidelines during site-specific NEPA project designs.	Potential for adverse impacts due to restrictions in habitat.
Non-Key Issues			
Wildlife	The lack of regulatory mechanisms allows for potential threats to habitat loss to continue	Improves protections for the Bi-state DPS and supports a “may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability” determination for the Bi-state DPS and other sage-habitat-dependent species.	Provides the highest level of risk and threat reduction for the Bi-state DPS and supports a “may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability” determination for the Bi-state DPS and other sage-habitat-dependent species.
Range Improvements and Domestic Livestock Grazing	No change from current condition	Utilization standards in habitat are more restrictive than current condition. This could lead to changes in grazing systems, increased herding of livestock, and shortened season of use. However, implementation could indirectly improve rangeland conditions, increase vegetation productivity, improve forage long term, and improve Bi-state DPS habitat.	Closes all grazing allotments in Bi-state DPS habitat. Permitted AUMs (animal unit months) on the allotments would be eliminated. Construction and maintenance of range improvements would cease. Existing range improvements would be removed or modified to eliminate impacts to the Bi-state DPS and its habitat.
Weeds	No change from current condition	Effects are expected to improve the ability to control invasive weeds due to regulatory mechanisms that limit disturbance, use weed-free seed, cleaning clauses, and limit introduction/spread of weeds.	Effects would be similar to alternative B with the addition of regulatory mechanisms that further emphasize control and prevention of invasive annual grass and weed species, additional restrictions applied to various land uses, increased limits on total anthropogenic disturbance within population management units, and an overall greater emphasis on habitat restoration and wildfire risk reduction.

Issue	Alternative A – No Action	Alternative B–Modified	Alternative C
Wild Horses and Burros	No change from current condition	Depending on site-specific analysis, the proposed action could impact six herd management areas/wild horse and burro territories. Managing for the Bi-state DPS habitat desired conditions by adjusting wild horse and burro populations, reducing domestic livestock utilization, and removing pinyon-juniper could improve forage production and availability over the long term which would have a beneficial impact on wild horse and burro populations.	This alternative would eliminate competition between domestic livestock and wild horses and burros. Revisions to management plans and AMLs (appropriate management levels) may be required to meet desired conditions for Bi-state DPS habitat. Managing for the Bi-state DPS habitat desired conditions by adjusting wild horse and burro populations, eliminating domestic livestock grazing, and removing pinyon-juniper could improve forage production and availability over the long term which would have a beneficial impact on wild horse and burro populations.
Minerals	No change from current condition	Alternative B would have minor impacts on oil & gas exploration and production, but would have a much greater impact on geothermal exploration and production. Consequently, most geothermal exploration would likely take place outside of habitat. Solid leasable minerals would not be expected to be permitted in habitat, but existing gravel pits would continue. Locatable minerals may experience impacts resulting from site-specific NEPA, such as likely seasonal restrictions, delay in processing, and other mitigations, because implementation of standards and guidelines would be subject to valid existing rights. It is difficult to determine the extent of the effect.	Due to the restrictions in this alternative, many of the operating mines, existing gravel pits, and exploration projects would continue operating for a while, but new discretionary project proposals in habitat would be significantly curtailed. Nondiscretionary activities would continue to be permitted in habitat. A petition to withdraw portions of habitat from locatable mineral activity would be presented to the BLM.
Fire and Fuels Management	No change from current condition	Effects are expected to improve the protection of sagebrush ecosystems and reduce the threat of cheatgrass by increasing the use of mechanical treatments in pre-identified areas based on zonal precipitation averages and minimum vegetation cover thresholds.	Effects are expected to be similar to alternative B.

Chapter 3. Affected Environment and Environmental Consequences

Introduction

This chapter summarizes the physical, biological, and economic environments that are affected by the alternatives and the effects on that environment that would result from implementation of any of the alternatives. For additional details about the resources and potential effects see the specialist's reports in the project record. These reports will be provided as requested. This chapter also presents the scientific and analytical basis for comparison of the alternatives presented in chapter 2.

Analysis Process

Most of the data used in the following analyses are from the Humboldt-Toiyabe National Forest corporate GIS layers and those of the Nevada State BLM. There is a certain amount of error in the location and size of features included in this GIS data. For example, the fence and powerline corridor layers may be incomplete. There may also be errors resulting from the different sources from which the different layers were obtained. Some perennial streams may show up on the map as being intermittent, which could create some inaccuracies as to the exact location and extent of riparian zones. The Forest and BLM are constantly working to improve the accuracy of maps and the corporate GIS layers.

For the purposes of this analysis, the best data available was used. The data in the tables below and in the project record depict with a reasonable amount of accuracy what would be occurring on the ground for each alternative, within the limitations described above. The changes between alternatives remain relative to each other.

Cumulative Effects

According to the Council on Environmental Quality (CEQ) National Environmental Protection Act (NEPA) regulations, "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7).

The cumulative effects analysis area is described under each resource, but in most cases includes the entire extent of the units involved. In the economics analysis, the cumulative effects analysis area includes private and other public lands that lie within the boundaries of the six potential affected counties. Past activities are considered part of the existing condition and are discussed in the "Affected Environment" (existing condition) and "Environmental Consequences" sections under each resource.

The CEQ issued an interpretive memorandum on June 24, 2005, regarding analysis of past actions, which states, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." To understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that has affected the environment and might contribute to cumulative effects.

Overall Approach to Effects Analysis

We have established the following analysis framework for this project:

- This is a programmatic analysis; the resulting decision will provide guidance for Forest Service and BLM land managers as they develop, review, and implement site-specific projects on national forest system lands and public lands managed by the BLM in the amendment area.
- This analysis will not compare the action alternatives to a pristine, untouched environment; but rather to the no-action alternative, which includes an array of management activates not covered in the current management plans.
- Property owners and managers other than the Forest Service and BLM within the amendment area are not restricted by or subject to the proposed management direction unless activities occur on national forest system lands or public lands managed by the BLM.
- There are no areas of critical environmental concern within this amendment area.

Because none of the alternatives make a project- or activity-specific decision, for the purposes of this programmatic analysis, the interdisciplinary team made assumptions about implementation of the Forest Plan under the alternatives. The following section describes the assumptions during their analysis of the alternatives on various resources. Disclosure of the direct, indirect, and cumulative impacts that each alternative could potentially have is further described in this chapter and is contained in specialist reports in the planning record.

Analysis Assumptions

General

- Appropriate NEPA analysis would be required for project- or activity-specific decisions.
- The decision not to amend or to amend the land use plans does not ensure USFWS action not to add (or to add) the Bi-state DPS to the ESA (Endangered Species Act) list of threatened and endangered species.

Access

- Future site-specific NEPA analysis would be required to address timing and types of recreational use that are determined to potentially cause discrete or long-term disturbances. Most current use is expected to be diffuse and have neutral or short-term impacts.
- Travel routes that pass through active leks may be seasonally closed during the period when birds are on the leks. This would require a site-specific NEPA decision or Forest closure order.
- During nesting/broad rearing, designated roads and trails would be open to individual casual users unless discrete and long-term impacts are identified from this use.
- Road maintenance on Forest Service roads upon renewal may have timing limitations and other mitigations attached.
- Timing limitations would not apply to Federal and state highways, or county roads.

Livestock

- Properly managed livestock grazing is a diffuse impact and does not generally cause surface disturbance. However, surface disturbance does occur in areas where livestock concentrate, such as around range improvements and sheep bedding grounds.

- For alternative B, the construction and maintenance of range improvements would continue in the planning area as needed. New range improvements would be subject to limitations as defined in the alternative. Range improvements are generally intended to improve livestock distribution and management, which would maintain or improve rangeland health and could benefit the forage base, wildlife, and Bi-state DPS habitat.
- For alternative C, allotments with Bi-state DPS habitat would be completely closed to grazing. Bi-state DPS habitat areas are generally large sagebrush communities and riparian areas that provide the bulk of forage within grazing allotments.
- Livestock concentration can represent a discrete impact, but the impact may be long term or short term depending on timing and location.
- Standards and guidelines identified in the proposed amendment are there to reduce impacts where livestock may concentrate (such as near water sources, gathering facilities, supplement sources, etc.).

Special Uses

- Mitigation measures would be used to limit diffuse and discrete disturbances to the Bi-state DPS during all seasons, in particular for those existing and proposed activities that are ground-disturbing.
- Instead of creating new disturbance, consolidation of development near or along existing permitted corridors, and similar stipulations, are expected to be included in future projects.
- Nothing in the proposed amendment would preclude authorization of a special use permit.
- Group events and some outfitter-guide permits would be subject to timing limitations.
- The time period for approval of permits could be extended due to the need for site-specific NEPA analysis and the inclusion of additional design features.
- The Marine Corp Mountain Warfare Training Center will be managed according to the terms and conditions specified in their permit and as defined in the Integrated Resource Management Plan developed specifically for the facility and in consultation with the Forest and the USFWS.

Non-discretionary Locatable Minerals (Such as Gold, Copper, Barite, and Silver)

- Timing limitations for such activities as construction, surface disturbance, drilling, occupancy, and others may be assigned.
- Each component of proposed projects should be evaluated and mitigated to reduce or eliminate long-term negative impacts to Bi-state DPS to the extent practicable.
- Off-site mitigation may be recommended for unavoidable long-term impacts to Bi-state DPS.
- Nothing in the proposed amendment would preclude authorization of a plan of operations.

Discretionary Mineral Materials (Saleable Minerals; Such as Sand and Gravel)

- Exploration and development permits and new quarries will be discouraged/carefully considered or eliminated in Bi-state DPS habitat, especially if the purpose and need for the action can be met outside the habitat.
- Expansion of existing pits inside habitat may have timing limitations and hours of use modified. Measures to control noise, dust, visual, and other impacts may be added, along with other mitigations to reduce negative long-term impacts.

- The level of analysis and permitting time may be increased due to the complexity and potential for impacts to Bi-state DPS.

Discretionary Leasable Minerals (Such as Geothermal, Oil and Gas, Solid Leasable)

- Exploration and development may be discouraged/carefully considered, minimized, or eliminated in Bi-state DPS habitat, especially if the purpose and need for the action can be met outside the habitat.
- New development components would be placed to have the least impact on Bi-state DPS and may be placed outside habitat where possible.
- Stipulations for leasing and new leasing analysis would incorporate the applicable standards, objectives, and guidelines from this amendment.
- Timing limitations and other mitigations would be applied to activities inside Bi-state DPS habitat if they cause long-term negative impacts.

Vegetation Habitat Improvement Projects

- Long-term discrete disturbance is expected for vegetative improvement. During implementation, the Bi-state DPS would not be using area because of disturbance. While sage grouse are expected to move back into the area after implementation, their return is not certain and would occur after the vegetation is restored to meet their habitat needs.
- Implementation in large restoration areas may take 10 years to complete.
- Vegetation habitat improvement would emphasize mechanical treatment.

Bi-state DPS

- Protecting habitat, improving habitat, and reducing disturbance will help maintain or increase the population and distribution of the species.
- Although the alternatives apply only to lands administered by the Forest Service or BLM, none of the alternatives prohibits mitigation activities that may be required for Forest Service or BLM authorization or to meet the purpose of the proposed action from occurring on lands administered by other government, private, or tribal entities under appropriate authorizations.

Resource Analysis

Each resource specialist assessed the potential effects of the proposed action on the ability to manage the resource program and associated land users.

The resource sections in this chapter provide a summary of the project-specific reports, assessments, and other documents prepared by resource specialists on the interdisciplinary team. These reports are part of the project record on file at the Humboldt-Toiyabe National Forest Supervisor's Office in Sparks, Nevada, and are available on request. The following reports, assessments, and other documents are incorporated by reference:

- **Recreation and Lands Special Uses:** Recreation and Lands Special Uses specialist reports
- **Wildlife:** Wildlife Specialist Report and the Biological Assessment/Biological Evaluation (BA/BE)
- **Minerals:** Minerals Specialist Report
- **Economics:** Economics Specialist Report

- **Rangeland Improvement and Domestic Livestock Grazing:** Rangeland, Weeds, and Wild Horses and Burros specialist reports
- **Fire and Fuels Management:** Fire and Fuels Specialist Report

Information on Other Resource Issues

The proposed amendment does not affect the following resource issues, or localized effects are disclosed under other resource sections. A brief summary on why they are not discussed further in chapter 3 is provided based upon input received during scoping.

Climate Change. The proposed amendment identifies regulatory mechanisms to conserve, enhance, and/or restore sagebrush habitats. These regulatory mechanisms will not have either a positive or negative impact on climate change. Neither will climate change have an effect on how the regulatory mechanisms in the proposed amendment are eventually implemented.

Research Natural Areas. Research natural areas that fall within the amendment area have their own set of management directions which, in general, prohibit management activities. Nothing in this proposed amendment would alter or change the specific management direction defined in the forest plans for research natural areas.

Wilderness and Wilderness Study Areas. The proposed amendment does not affect wilderness areas. Site-specific activities designed to improve sagebrush habitats that include portions of a wilderness or wilderness study area would have to meet both the management direction for the Bi-state DPS and directions specific to the Wilderness Act.

Environmental Justice (Executive Order 12898): The proposed action would not result in any identifiable effects or issues specific to any minority or low-income population or community. The Agency considered all public input from persons or groups regardless of age, race, income status, or other social/economic characteristics. Examination of community composition, as required under this Executive order, found no minority or low-income communities to be disproportionately affected under any of the alternatives. This was not raised as an issue during scoping.

Civil Rights. The USDA civil rights policy requires each agency to analyze the civil rights impact(s) of policies, actions, or decisions that would affect federally conducted and federally assisted programs and activities. A civil rights impact analysis facilitates the identification of the effects of eligibility criteria, methods of administration, or other agency-imposed requirements that may adversely and disproportionately impact employees or program beneficiaries based on their membership in a protected group. Protected groups include multiples of similarly situated persons who may be distinguished by their common race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetics, political beliefs, or receipt of income from any public assistance program. The proposed amendment would result in no identifiable effects or issues specific to any minority or low-income population or community. The Agency considered all public input from persons or groups regardless of age, race, income status, or other social/economic characteristics. Examination of community composition, as required under this Executive order, found no minority or low-income communities to be disproportionately affected under the proposed amendment.

Analysis of Effects

Access Issue

Recreation Resources

Affected Environment

Visitors to both the Forest Service and BLM lands included in the amendment area enjoy a wide variety of recreational opportunities due to varied terrain, many miles of roads and trails, recreational facilities, and year-round access. There are only 6,490 miles of travel routes (designated roads and trails) in the amendment area; 59 percent of those are under BLM administrative ownership and the remainder administered by the Forest Service[2]. There are no designated open OHV (off-highway vehicle) "play areas" in the amendment area, although the BLM does allow some cross-country travel. Existing travel routes on BLM have not been completely evaluated through a travel management planning process and have not been completely "designated". The current OHV designation for much of the BLM-managed land in the amendment area is "open" to unrestricted cross-country travel.

Approximately 45,000 acres along the Pine Nut Mountains crest are currently designated as limited to designated routes; however, the travel management process has never been completed for this area. The Burbank Canyons Wilderness Study Area (13,395 acres), located at the southern end of the Pine Nut Mountain Range, was closed to motorized use in the 1980s through a *Federal Register* notice. A small portion (25,000 to 30,000 acres) of the Pine Nut Mountains includes lands that limit motorized use to "existing routes" through the 2009 Omnibus Act. The rest of the public lands in the Pine Nut Mountains are designated open to OHVs.

Over the years there have been temporary restrictions on motorized use in the Pine Nut Mountains related to recent fires. Recent fire perimeters or portions of fire have a "limited to existing routes" restriction on them. Typically they remain in effect for 2 years after posted in the *Federal Register*.

There are no public lands in Alpine County designated "open" to motorized use. The Alpine County Plan Amendment (2007) either limited motorized use to "designated routes" or closed it. A small area (250 to 300 acres) near Harvey's Place reservoir has been closed to all public access (both motorized and non-motorized uses). Travel management has not been completed for Alpine County. Of the designated travel routes, 503.6 miles pass through the 5-mile buffer surrounding active Bi-state DPS leks.[3]

Motorized route designations on National Forest System lands are developed through a public travel management planning process. This process is conducted in accordance with the USFS 2005 Travel Management Rule (36 CFR 212.50 through 212.81).

This rule requires that motor vehicle use on national forest system roads, on national forest system trails, and on any USFS-administered areas allowing cross-country motorized travel, shall be designated according to vehicle class and, if appropriate, to time of year by the responsible official on administrative units or ranger districts.

The BLM has a similar regulation (43 CFR Subparts 8340 through 8342). The regulation requires that all public lands be assigned an OHV management area designation of "open" or "limited" or "closed" to motorized travel. The agency prohibits motor vehicle operation not in accordance with those designations.

[2] GIS data: USFS and BLM (2013).
[3] GIS data: USFS and BLM (2013).

Forest Service Recreation Special Uses. In 2011, 16 outfitter-guide permits were in effect on the Carson Ranger District and 15 on the Bridgeport Ranger District. Carson Ranger District issued the greatest number of permits for rafting trips, with hunting and fishing a close second and third. On the Bridgeport Ranger District, permits were issued on a relatively even basis for backpacking, multi-sport activities, fishing, and stock-based activities. In 2011, between the two districts, 39,006 service days were authorized to outfitter-guides, less than 1 percent of total visitor use according to national visitor use monitoring results.

Specific to the amendment area, outfitters are permitted to take clients fishing, hunting, and snowmobiling. Actual client days used rarely meets the days allotted for these activities. With the exception of hunting, the majority of outfitted trips are day use. The majority of outfitter-guide activities occur during the summer months. A Marine warfare training center conducts exercises in the amendment area.

Special use permit administrators were surveyed in 2011 to determine what they saw as emerging trends or demands for outfitter-guide services on the Forest. The most common activities identified included OHV tours; winter activities, such as snowcat and yurt skiing; hiking; mountain biking; and climbing.

Activities and trends considered new and emerging on the Forest included ziplines, geocaching, kite boarding, and paintball/airsoft and ropes courses. The activities listed as growing in popularity included OHV use and hang-gliding.[4]

The Carson and Bridgeport ranger districts are currently completing an outfitter-guide program analysis. This process looks at the need for commercial services, limiting factors to capacity in geographic areas established by the Forest Plan, and establishes a visitor capacity and outfitter-guide service day allocation in areas where it is determined necessary.

There are several organized recreation events occurring each year, particularly in the Wassuk geographic area. Forest Service permitted recreation events typically includes the following:

- Sierra Trail Dogs motorcycle event lasting for 2 days in June (about 150 motorcycles)
- Modesto Ridge Runners event taking place in August (60 to 80 vehicles)
- Walker ATV Jamboree taking place in June (200 to 300 participants over 5 days)
- American Enduro Ride: horse ride in August (about 30 people)

BLM Recreation Special Uses (Carson City District). Several organized recreational activities take place on BLM-managed public land in the amendment area. These include competitive motorcycle races, OHV and other vehicle races, competitive horse endurance rides, organized camping events, and competitive mountain bike races. These are described in further detail below:

- Annual 2-day organized group camping and motorcycle riding at Wilson Canyon; some motorcycle riders will use area around Wilson Canyon for localized riding, whereas other riders will head north to Smith Valley/Singatse Range or south onto Forest Service for extended trail riding.
- OHV truck/buggy races (May/September) in the Singatse Range/Lincoln Flat/Churchill Canyon/Adrian Valley area.
- Annual 1 day mountain bike race held in mid-May in western Pine Nut Mountain Range near Ruhenstroth or just east of the Douglas County landfill.

[4] Carson-Bridgeport Ranger Districts Needs Assessment, 2013.

- Annual 1 day horse endurance ride staged out of Dayton rodeo grounds. Course located in north Pine Nut Mountain Range. Held in late May/early June.
- Annual ATV tours over 3-day period in Pine Nut Mountains. Held in mid-June.
- Annual dual sport motorcycle ride in Lyon/Mineral Counties, West Wassuks/Cambridge Hills area. Held in mid-June.
- Annual 1-day horse endurance ride in southwest area of Pine Nut Mountain Range. Held in late June.
- Annual Vegas to Reno OHV race (August) comes through northern part of Pine Nut Mountains via Adrian Valley and Churchill Canyon.
- Fishing outfitter and guide in Alpine County, seasonal.

BLM Recreation Special Use Permits (Tonopah Field Office). Many of the commercial permits, such as those issued to hunting outfitters and guides, are used throughout the Battle Mountain District. Competitive permits, such as OHV races, are confined to a preapproved race route. A large percentage of the races that have occurred in the area have taken place in the Tonopah Field Office. Less than 10 special recreation permits per year are issued in the entire Battle Mountain District over the last 10 plus years.

There are no outfitter-guide permits currently authorized specifically in the amendment area. Determination and issuance of special use permits for both outfitters and for recreation events are governed by interim direction that seeks to minimize impacts to sage grouse habitat. The Forest Service follows the Interim Conservation Recommendations for Greater Sage Grouse and Greater Sage Grouse Habitat (2012) and the BLM the interim direction contained in BLM IM NV 2012-061. Both documents contain specific instructions on evaluating, permitting, and mitigations for recreation special uses activities. The documents also reference guidelines for evaluating travel management activities. The BLM interim direction also provides guidance for evaluating recreation sites for impacts to sage grouse habitat.

Environmental Effects

Alternative A – No Action

Direct/Indirect Effects.

Recreation. There are no direct effects of the no-action alternative. People could continue to recreate on public lands as they have done in the past. Access would not be limited seasonally, permanently, or through modifications of permits except through normal permitting processes. To meet current plan direction, applications for recreation special use permits would continue to be analyzed using existing agency policy, determination of need, and site-specific environmental analysis. Existing permits would continue under their current stipulations and terms and conditions. The demand for new recreation facilities could be met if other conditions allowed for their construction.

Lands Special Uses/Recreation. In the long term, there would be little indirect effect to recreation from the no-action alternative. Those visitors who enjoy seeing the birds could lose that opportunity if grouse abandon leks and forage areas as a result of disturbance, not currently restricted by the land use plans. Those visitors who appreciate and value an intact ecosystem would notice changes over time. As Bi-state DPS habitat degrades from lack of action, some visitors may choose not to visit those areas for a variety of reasons, including increased development, the presence of nonnative plant or animal species, and lack of plant and animal diversity.

Cumulative Effects. While recreation opportunities could decrease over time as habitat requirements are not met for the Bi-state DPS, this alternative is not expected to have significant cumulative effects to recreation.

Table 3-1. Management indicators for assessing effects to recreation–alternative A

Issue	Management Indicator	Changes from Existing Condition
Access	Miles of travel routes that would be changed from the current condition due to seasonal restrictions	No change
	Potential changes to OHV recreational events by timing, location, and season	No change
	Acres of land available for cross-country driving opportunities that would be closed	No change
	Restrictions on special use permits issued for recreational purposes	No change

Summary of Effects. Effects to recreation and lands special uses are expected to be negligible. Visitors would continue to recreate as they have in the past with no seasonal restrictions or mitigations to recreation special use permits or events in addition to those already imposed through the permit process or by travel management plans. Some visitors may notice absence of sage grouse or degradation of habitat.

Alternative B – Proposed Action

Under this alternative, more specific standards and guidelines are identified for managing anthropogenic uses and to meet Goal 2: *Bi-state sage grouse and their habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.* These standards and guidelines were developed from input received from the public, other agencies, the national sage grouse conservation efforts, and the NTT report.

Direct/Indirect Effects. Recreation could potentially be affected by implementation of alternative B. Changes in recreation settings and opportunities could result from implementation of the standards and guidelines in the proposed action. Timing limitations and limitations placed on construction could result in corresponding changes in the certain types of recreation opportunities that depend on free, unmanaged access and desired recreation experiences and associated benefits. These opportunities and benefits are influenced by access.

Recreational experiences and the potential attainment of a variety of beneficial outcomes are vulnerable to any management action that would alter the settings and opportunities in a particular area. Recreation settings are based on a variety of attributes, such as remoteness, the amount of human modification in the natural environment, evidence of other users, restrictions and controls, and the level of motorized vehicle use. Management actions that greatly alter such features within a particular portion of the decision amendment area could affect the capacity of that landscape to support diverse recreation opportunities and beneficial outcomes.

It is expected that most individual recreation activities, such as casual driving and use of designated trails, would be considered a diffuse disturbance with no long-term effects.

OHV group events would be subject to timing/location limitations, which could limit the ability of some participants to attend. Organizers may decide not to hold the event if they could not continue to hold it during a time that they desire to do so. This would represent a reduction in opportunity for participants

who would otherwise have been attending such events each year. OHV events would be restricted near leks and in winter habitats. A total of 503.6 miles of travel routes pass through the 5-mile buffer around active leks, and lekking occurs between March 1 and May 15, it is expected that impacts resulting from reduced access would be minor, since recreation opportunities during this time of year are fewer and many additional miles of travel routes exist on public lands. Winter habitat outside of the lek perimeters is only a small amount of the land base and other options exist for those wishing to hold events. In addition, many acres of land are available within and outside of the amendment boundary where no leks occur.

The vast majority of organized OHV events occur after May 15. All OHV events would continue to be analyzed under site-specific environmental analysis, which could impose additional restrictions.

A total of 503.6 miles of travel routes pass through the 5-mile buffer around active leks, and lekking occurs between March 1 and May 15, impacts resulting from reduced access to outfitter-guides should be minor, since recreation opportunities during this time of year are fewer and many additional miles of travel routes exist on public lands. The majority of outfitter-guides operates later in the year and would be able to choose areas that would be available for their business that did not fall within the restricted areas. Current permits and proposals are evaluated and modified if necessary under the existing interim direction for both agencies, so changes to existing permits should be minor.

No effect is expected on casual driving by individuals since use would be kept at the current condition. Unless future planning efforts restrict this practice, all acres of open designation on BLM lands would still be available for off-road drivers.

Table 3-2. Management indicators for assessing effects to recreation–proposed action

Issue	Management Indicator	Changes from Existing Condition
Access	Miles of travel routes that would be changed from the current condition due to seasonal restrictions	503 miles through 5-mile buffer around active leks, for outfitter-guides and OHV events
	Potential changes to OHV recreational events by timing, location, and season	Seasonal restrictions/locations
	Acres of land available for cross-country driving opportunities that would be closed	No change on Forest Service land (currently zero); future planning may change acres available on BLM land
	Restrictions on special use permits issued for recreational purposes	Changes in timing and location

Summary of Effects. Effects are expected to be minor to recreation and lands special uses, with the exception of those proponents who expect and want a specific location and season in order to conduct their activity. Those individuals or businesses could experience inconveniences and occasional financial burdens in order to adopt the stipulations required.

Alternative C

Direct and Indirect Effects. Under this alternative, standards and guidelines that are more conservation oriented and more restrictive to lands/recreation activities are proposed in order to meet Goal 2: *Bi-state DPS and habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions*. These standards and guidelines were developed from input received from the public, other agencies, the national sage grouse conservation efforts, and the NTT report.

Standards and guidelines in alternative C would include additional restrictions on proposed and existing activities in the amendment area.

Recreation opportunities could be affected the most under implementation of alternative C. Restrictions on seasons, locations, and access could change the way people recreate in the amendment area. While there would still be numerous alternative locations for OHV events and outfitter-guide activities outside of Bi-state DPS habitat, permit holders who still wanted to hold events or guide clients would need to identify different locations and routes. Permit holders and applicants could incur additional costs and longer timelines in order to obtain permission for their activity. Some past OHV event participants might be deterred by changes in event locations and timing.

It is expected that most individual activities, including driving, would be considered a diffuse effect and could continue. Under this alternative no cross-country driving could occur on BLM lands within habitat. However, the majority of "open" designation occurs outside of habitat. A small amount of acres would be unavailable for this type of recreation, and users that enjoy it would be displaced to other locations or would be limited to designated roads and trails.

Off-road motorized vehicle use can impact Bi-state DPS habitat by causing habitat loss and fragmentation, invasive plant spread, induced displacement or avoidance behavior, creation of movement barriers, noise, and direct encounters (Knick et al. 2011). Reducing the extent and influence of roads and trails, and the areal extent of off-road use, would be expected to reduce impacts associated with these activities.

The restriction on cross-country travel may impact some motorized recreation, such as OHV exploration which depends on unrestricted travel. Opportunities for non-motorized recreation, such as hiking, horseback riding, and hunting, in a more natural or primitive setting, may be expanded and enhanced.

Not allowing any new recreational facilities in habitat could create concentrations of users at existing developments. With factors associated with crowding such as loss of solitude, conflicts with different types of uses, and over-use of facilities, people may become dissatisfied with their recreation experience in certain areas. However, a substantial amount of facilities currently exist and it is unlikely that visitors would be unable to find places to camp, picnic, and recreate that would suit their needs.

Allowing new roads only in limited circumstances and within the 3 percent disturbance ratio could mean that access would be decreased over time as existing roads become unusable due to lack of funds for maintenance, or roads are closed or restricted through other planning processes.

Table 3-3. Management indicators for assessing effects to recreation–alternative C

Issue	Management Indicator	Changes from Existing Condition
Access	Miles of travel routes that would be changed from the current condition due to seasonal restrictions.	No outfitter-guide activities within 4 miles of a lek.
	Potential changes to OHV recreational events by timing, location, and season.	No OHV events in habitat.
	Acres of land available for cross-country driving opportunities that would be closed.	None would be available.
	Restrictions on special use permits issued for recreational purposes.	No OHV events in habitat; outfitter-guide activities restricted (see above).

Summary of Effects. Effects of this alternative could range from minor to moderate depending on how invested an individual or business is in their proposal or existing event/development. Individuals or businesses focused on certain seasons or locations for conducting events or activities could be inconvenienced by the standards proposed.

Cumulative Effects on Recreation for Alternatives B and C

Cumulative effects to recreation within the amendment area boundary would relate to other administrative or Forest and BLM management activities occurring within or immediately adjacent to the amendment area. The present and foreseeable actions relevant to the cumulative effects analysis for recreation resources and lands special uses are:

- Carson and Bridgeport Ranger Districts' Outfitter-Guide Program Analysis; and
- Revision of land management plans for both agencies and associated changes in policy and direction.

The spatial boundaries for analyzing the cumulative effects to recreation are the amendment area and adjacent public lands, because typically visitors do not cease to recreate at specific land management boundaries. Often, restrictions and management actions on adjacent public lands can cause recreation patterns to change in response, including displacement to other areas where restrictions are fewer, and concentration of use in areas where access is easier.

In the revision process both agencies will adopt standards and guidelines designed to address the need to protect Bi-state DPS and habitat. The standards and guidelines that could directly impact permitted recreation opportunities would apply across the unit boundaries of the two Federal agencies habitat-wide.

Cumulatively this would represent a change in the timing and use of Bi-state DPS habitat rangewide. Outside the range there would be little change. The temporal boundaries are either short term and temporary, occurring during a single season (direct effects), or longer term (indirect effects).

Across the amendment area and cumulative effects analysis area some of the standards and guidelines being proposed are already being implemented either through formally recognized management guidance in an RMP (Bishop Field Office), informal application of best management practices (Humboldt-Toiyabe National Forest), or through interim management direction (Inyo National Forest and Nevada BLM). As a result in some instances there would be little expected change resulting from this action and cumulatively all Forest Service and BLM units with Bi-state DPS habitat would be managed consistently. Cumulative effects to recreation would depend on any new direction proposed in upcoming land management plan revisions. Changes in how recreation is managed, along with any seasonal or timing restrictions determined in future NEPA analysis, could have a cumulative effect on recreation opportunities in the amendment area. Future outfitter-guide allocations determined in the ongoing needs assessment/capacity analysis could further restrict new applicants. There may be a wholesale shift in the timing of recreation across the habitat because of the consistent management direction. However, with the majority of the public lands not falling within the amendment area, these effects are expected to be minor.

Lands Special Uses Resource

Affected Environment

Forest Service, Bridgeport and Carson Ranger Districts. Forest Service "Lands" special use permits include 4 powerlines, 5 fiber-optic lines, 2 telephone lines, 11 communication sites, several water-related structures (dams, reservoirs, pipelines, ditches, storage tanks) and 5 Department of Transportation road

easements and 11 concessionaire-operated campgrounds.[5] Not all of these exist in habitat. There have been no proposals for solar development, but some interest in wind development (although never pursued).

Bureau of Land Management (Carson City District). Portions of four BLM-designated utility corridors traverse the amendment area, totaling about 88 miles and covering a total area of approximately 133,500 acres, 112,850 acres (85 percent) of which are on BLM-administered land. All utility corridors are occupied by electrical transmission lines, which include 120-kilovolt (kV) Mount Rose to Brunswick, 120-kV Verdi to Bluestone, 120-kV Fort Churchill to Buckeye, and 60-kV Carson to Yerington. A natural gas transmission line also is generally located within the Carson to Yerington and Mason Valley to Brunswick utility corridors.

The BLM facilitates communication site rights-of-way processing and minimizes surface disturbance by grouping communication facilities at locations where existing facilities occur, where access is reasonably available, where terrain is appropriate for communication facility needs, and where other resource values are limited. There are communications sites in the Como Pass and Rawe Peak areas.

Solar energy development on BLM-administered lands is managed through rights-of-way authorization under Title V of the Federal Land Policy and Management Act of 1976, 43 CFR 2800, and current applicable BLM instruction memoranda. This guidance is expected to change over time and new instruction memoranda are expected to be developed.

Rights-of-way applications for solar energy development projects are identified as a high-priority BLM field office workload, consistent with the President's National Energy Policy of 2001 and the Energy Policy Act of 2005. The term length of the authorization is not limited by regulation (43 CFR 2805.10[a][3]); however, it should recognize the overall costs and useful life of solar energy facilities (43 CFR 2805.11[b][3]). The term of the solar energy authorization for a commercial facility should not exceed the design life of the project, typically 30 years. The authorization may be renewed consistent with the provisions of the regulations (43 CFR 2807.22[a]). Other compatible uses may be authorized, but are unlikely due to the intensive use of the site for photovoltaic or concentrating solar power facility equipment.

Wind energy development on BLM-administered lands is managed through rights-of-way authorization in accordance with the terms and conditions of BLM's Wind Energy Development Policy (Instruction Memorandum 2009-043 [BLM 2009]). This guidance is expected to change over time.

There are no solar or wind projects in the amendment area; however, this does not preclude the possibility for proposals to be received, including those that would propose use of the amendment area.

Rights-of-way on BLM land are generally long term, with a typical permit length of 30 years. A few authorizations have been granted in perpetuity if they were issued under acts prior to FLPMA. There are a few authorizations that are coming up for renewal soon. Generally, both Federal agencies apply any necessary grant stipulation updates at the time of renewal. However, both agencies have the authority to correct grants/add stipulations at any time to prevent undue and unnecessary degradation to public land and its resources.

BLM Lands Special Uses (Tonopah Field Office). There are currently no "Lands" special use authorizations on the Battle Mountain District portion of the amendment area.

[5] USFS personal communication, 2013.

There are no existing wind rights-of-way and there have not been any applications received to proceed with either a wind testing or a wind development project within the Battle Mountain District. Transmission capacity is a major factor in the feasibility and success of wind energy projects, particularly in remote areas such as the Battle Mountain District. Without existing, adequate transmission capacity the likelihood of wind energy development in the District is low. There are no current transmission rights-of-way applications nor has there been any interest expressed for future transmission rights-of-way within the Battle Mountain District. Due to the limited size of plots of BLM-administered land with good-quality wind resources, the lack of wind projects in the Battle Mountain District, the lack of pending rights-of-way applications in the Battle Mountain District, lack of transmission capabilities and transmission rights-of-way application interest, and the fact that much better wind resources occur in other parts of the state, it is not expected that commercial-scale wind energy projects would be developed within the planning area by year 2030.[6]

Requests for rights-of-way are likely to increase in the next 20 years on BLM lands due to increased interest in renewable energy and the potential for growth and development. As energy development continues, energy rights-of-way, such as electric transmission lines and regulations that allow for right-of-way access and use, are likely to increase in importance.[7]

Determination and issuance of permits are governed by interim direction that seeks to minimize impacts to sage grouse habitat. The Forest Service follows the Interim Conservation Recommendations for Greater Sage Grouse and Greater Sage Grouse Habitat (2012) and the BLM the interim direction contained in BLM IM NV 2012-061. Both documents contain specific instructions on evaluating, permitting, and mitigations for lands special uses activities.

Environmental Effects

Alternative A – No Action

Under this alternative, issuance of recreation special uses and lands authorizations would continue using Forest Plan direction, interim guidance, and existing policy and direction. Recreation management would continue under the same guidance and policy. Site-specific environmental analysis would determine stipulations, timing, and location of use.

Direct/Indirect Effects. There would be no direct effects on lands special uses under this alternative. The interim management direction would continue to guide issuance of permits. Applications for "Lands" special use permits would continue to be analyzed and approved or denied using existing agency policy, determination of need, and site-specific environmental analysis. Existing permits would continue under their current stipulations and guidelines. Opportunities would be unchanged for development of alternative energy resources with subsequent economic benefit for the region. "Lands" special use permits would not experience any indirect effects. Opportunities would remain unchanged.

[6] U.S. Department of the Interior, Bureau of Land Management, Battle Mountain District. Reasonably Foreseeable Development Scenario for Solar and Wind for the Battle Mountain District Resource Management Plan/Environmental Impact Statement. April 2013.
[7] Battle Mountain Resource Management Plan and EIS.

Table 3-4. Management indicators for assessing effects to lands special uses–alternative A

Issue	Management Indicator	Changes from Existing Condition
Economics	Potential changes in opportunities for the development of alternative energy resources (i.e., solar, wind, etc.) or other developments, including powerlines and communication sites.	Based on interim direction for protection of Bi-state DPS, there could be restrictions on location of new developments which would be determined through site-specific environmental analysis.
	Anticipated modification to permits during renewal process.	Based on interim direction for protection of Bi-state DPS, there could be modifications to existing permits during the renewal process. These would be determined through site-specific analysis.

Cumulative Effects. There would be no cumulative effects to "Lands" special uses.

Summary of Effects. Effects to "Lands" special uses are expected to be negligible. Visitors would continue to recreate as they have in the past with no seasonal restrictions or mitigations to special use permits or events in addition to those already imposed through the permit process or by travel management plans. Some visitors may notice absence of sage grouse or degradation of habitat. Lands special use permits would continue to be processed and approved as they have been in the past.

Alternative B – Proposed Action

Under this alternative, more specific standards and guidelines are identified for managing anthropogenic uses and to meet Goal 2: *Bi-state DPS and their habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.* These standards and guidelines were developed from input received from the public, other agencies, the national sage grouse conservation efforts, and the NTT report.

Direct/Indirect Effects. Existing special use permits could potentially be affected by implementation of standards and guidelines. Future project-specific analysis could require modification of permits to meet seasonal and height restrictions. As a result, special use permit holders may need to invest in equipment or personnel to meet these requirements. New permits could still be authorized, but would be subject to standardized stipulations relating to the standards and guidelines. For existing permits, alternatives may be identified that would allow authorization of the permit and meet the standards and guidelines with little additional cost.

In some cases, if new proposed activities were determined to have an adverse effect on Bi-state DPS and they could not be mitigated, permits would have to be modified. Proponents may have to identify other sites for their lands special use. In some cases, proponents may find the mitigations too costly and may withdraw their application. Restrictions on facility placement, limited access, increased administrative costs, and installation of facilities in less-than-optimum sites could all result if applicants applied for authorizations in avoidance areas. Alternative energy projects would be the most affected because they have potential to be a long-term discrete disturbance with potential for negative effects. Many acres of public lands exist outside of the project boundary that could be available for these types of projects. Since interim direction currently guides the issuance of lands special use permits, effects are expected to be minor and limited to certain situations where a previously unpermitted type of use was proposed.

Indirect effects of the proposed action include how adoption of the standards and guidelines would affect management of the current program. Instead of BMPs and interim direction, standards would be required and standardized throughout the program. This would eliminate uncertainty on the part of the applicant and would assist in consistency between districts and agencies. There could be a benefit to applicants because their requests may be processed in a timelier manner due to standardization and streamlining of the process.

Opportunities for economic growth and benefit to communities may be affected by applicants not proceeding with proposed actions because of mitigations placed on these types of permits. The amount of impact would depend on level of type and expense of the mitigation. However, since standards and guidelines already existed for these types of permits, the impacts are likely to be minor.

Access could be affected through implementation of this alternative. The use of existing roads and construction of new roads would not be prohibited through the proposed action; however, future site-specific NEPA could modify or change access to Forest Service or BLM lands if the proposed roads did not fall under the types allowed in the guideline.

A project proposed in these areas may be subject to additional requirements, such as resource surveys and reports, construction and reclamation engineering, long-term monitoring, special design features, special siting requirements, timing limitations, and rerouting. Such requirements could restrict project location or they could delay availability of energy supply (by delaying or restricting pipelines, transmission lines or renewable energy projects), limit future access, delaying or increasing the cost of energy supplies, or they could delay or restrict communications service availability. As a result of special surveys and reports, alternative routes may need to be identified and selected to protect sensitive resources. Applying special stipulations would result in increased application processing time and costs due to the potential need to relocate facilities or due to greater design, mitigation, and siting requirements.

Limitations on new rights-of-way and above-ground linear features, such as transmission lines and pipelines, could restrict the availability of energy or service availability and reliability for communication systems. While management under alternative B would allow for co-location, there are limitations as to the amount of infrastructure that can be co-located in a given right-of-way. Often co-location is not feasible. Therefore, under alternative B, there could be limited to no opportunity for new rights-of-way development.

Co-locating transmission development infrastructure in existing rights-of-way or Forest Service easements and existing disturbed areas reduces land use conflicts and additional land disturbance. Co-location policies also clarify the preferred locations for utilities and simplify processing on BLM- and Forest System-administered lands. However, co-locating can limit options for development and selection of preferable locations for rights-of-way.

Impacts on the location and design of communication towers on both BLM- and Forest Service-administered lands could occur. To be effective, communication towers are constructed to meet specific height standards as necessary to have line-of-sight with adjacent repeaters. Under alternative B, conditions on tower design (e.g., tower height) applied to towers within 2 miles of a lek may prevent the effective transmittal of communication signals to adjacent towers.

A considerable backlog of lands special use requests currently exists for projects proposed on Forest Service lands[8] and formal application of standards and guidelines may ensure expedited and standardized responses and approvals of permits. Applicants would know in advance the standards and guidelines they

[8] Personal communication, USFS, 2013.

are expected to meet and could determine whether following the mitigations would be too costly and time-consuming to proceed.

Management actions that prioritize habitat for acquisition and limit disposal of these lands would assist the BLM and Forest Service in prioritizing future land tenure and land ownership adjustments. Land tenure and land ownership adjustments are intended to maintain or improve the efficiency of BLM and Forest Service management. However, these same actions could reduce the flexibility for BLM and Forest Service to consolidate public lands for effective management of other resources.

Table 3-5. Management indicators for assessing effects to lands special uses–proposed action

Issue	Management Indicator	Changes from Existing Condition
Economics	Potential changes in opportunities for the development of alternative energy resources (i.e., solar, wind, etc.) or other developments, including powerlines and communication sites.	Process could be streamlined over existing situation: some areas would not be available for development or access
	Anticipated modification to permits during renewal process.	Additional requirements to structures.

Summary of Effects. Effects are expected to be minor to "Lands" special uses, with the exception of those proponents who expect and want a specific location and season in order to conduct their activity. Those individuals or businesses could experience inconveniences and occasional financial burdens in order to adopt the stipulations required.

Alternative C

Under this alternative, standards and guidelines that are more conservation oriented and more restrictive to "Lands"/Recreation activities are proposed in order to meet Goal 2: *Bi-state DPS and habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.* These standards and guidelines were developed from input received from the public, other agencies, the national sage grouse conservation efforts, and the NTT report.

Standards and guidelines in in alternative C would include additional restrictions on proposed and existing activities in the amendment area.

Direct/Indirect Effects. This alternative would have the most effect on this program due to more restrictive standards and guidelines. Applicants wishing to develop alternative energy or communication sites would be required to identify locations outside of Bi-state DPS habitat. Applicants seeking new rights-of-way or developments with structures greater than 8-feet tall would need to identify alternative locations due to restrictions. As rights-of-way permits come up for renewal, permit holders would incur additional expenses to install anti-perching devices and new permit holders would need to figure in costs of this additional requirement should their developments reach the height limitation. Burial of powerlines would be costly and time-consuming for permit holders and may present such a financial burden that applicants may decide to find locations with less stringent requirements.

The 4-mile requirement for taller structures could substantially limit new development in much of the amendment area. Determining alternate locations that did not fall within the restricted area would be time-consuming for the applicant.

Reclamation of relinquished rights-of-way, if found to be feasible, would be expensive and require additional environmental analysis. Increased workloads to accomplish this as well as to include stipulations in renewing permits would mean longer waiting times for applicants.

Access would only be allowed through existing routes, and new roads would only be constructed in limited circumstances. Those wishing the convenience of new routes would not be accommodated. However, access to private lands would still be provided under the applicable provisions of Alaska National Interest Lands Conservation Act.

Requiring those with existing rights to co-locate could limit options for selection of preferable locations for rights-of-way.

Potential future development of renewable energy would be reduced or eliminated within occupied habitat. This would force development to occur outside occupied habitat and/or on private lands.

By determining exclusion areas and standards, the BLM and Forest Service would be more transparent regarding lands that have fewer restrictions to future development. Renewable energy companies would know what lands are available and open to development. This could reduce preparation and selection of potential site time for companies since they would already know what areas were not available.

Table 3-6. Management indicators for assessing effects to lands special uses–alternative C

Issue	Management Indicator	Changes from Existing Condition
Economics	Potential changes in opportunities for the development of alternative energy resources (i.e., solar, wind, etc.) or other developments, including powerlines and communication sites.	No large-scale facilities in habitat; restrictions on rights-of-way; height and location restrictions.
	Anticipated modification to permits during renewal process.	Additional requirements for structures.

Summary of Effects. Effects of this alternative could range from minor to moderate depending on how invested an individual or business is in their proposal or existing event/development. Retro-fitting existing powerlines or structures, for example, could cause significant business expenses for some, but less for others, depending on the amount of development affected. Individuals or businesses focused on certain seasons or locations for conducting events or activities could be inconvenienced by the standards proposed.

Cumulative Effects for Alternatives B and C

Cumulative effects to lands special uses management within the amendment area boundary would relate to other administrative or Forest and BLM management activities occurring within or immediately adjacent to the amendment area. Present and foreseeable actions relevant to the cumulative effects analysis for lands special uses include:

- Revision of land management plans for both agencies and associated changes in policy and direction.

The spatial boundaries for analyzing the cumulative effects to lands special uses are the amendment area and immediately adjacent public lands, because often, restrictions and management actions on adjacent public lands can shift proponents to areas where restrictions are not in place.

The temporal boundaries are either short term and temporary, occurring during a single season (direct effects), or longer term (indirect effects).

Due to other sage grouse planning efforts regionally, there could be an effect on lands special uses, depending on decisions made in those efforts. Future renewable energy and communication site project proponents may begin to see less available opportunities on public lands on a regional basis. Additional restrictions in Bi-state DPS habitat determined through concurrent planning efforts may cause applicants for large-scale alternative energy developments or rights-of-way to have difficulty in finding adequate locations for their facilities.

Economics Issue

Summary

Economic effects are relatively minor for this plan amendment. The goals and objectives, and standards and guidelines proposed in the amendment focus on how the agencies consider different types of future proposed actions to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS.

Since there are no on-the-ground prohibitions on specific types of site-specific actions, the proposed action should not have direct effects. There may be indirect effects associated with the proposed action, which could include fluctuations in the costs passed on to project proponents wanting to develop a resource in the amendment area. There is a potential for additional costs for mitigations attached to a proposed action to reduce overall impacts to Bi-state DPS habitat from the action. Other costs may be incurred because of timing limitations in place to reduce impacts to the Bi-state DPS during specific periods of the year. At a larger scale—the economies of the six counties surrounding the amendment area—there should be very little noticeable effect on the economy or the distribution of income.

Affected Environment

This section discusses the economic impacts of alternatives on specific business sectors within the local economy. The economic study area is made up of counties within Nevada and California that contain Bi-state DPS habitat and within which economic conditions might reasonably be expected to change based on alternative management actions.

The socioeconomic study area contains six counties, all containing Bi-state DPS habitat: two counties are in California (Alpine and Mono) and four counties are in Nevada (Douglas, Esmeralda, Lyon, and Mineral) (table 3-7). While Bi-state DPS and its habitat also occur in Inyo and Tuolumne counties, and Carson City, these counties/city are not consider part of the economic study area for this project because management of sage grouse in those areas is not subject to the management direction proposed in the land use plan amendment.

Table 3-7. Counties within the economic study area and acres of habitat in each county by agency ownership

Bi-state DPS Project Area/Area Analysis State/County	Ownership Acres		
	BLM	Forest Service	Grand Total
California	46,344	579,486	625,831
Alpine (471,503)	24,207	204,825	229,032
Mono (2,006,450)	21,956	374,627	396,583
Nevada	3,029,404	764,080	3,793,484
Douglas (470,857)	161,410	46,964	208,374
Esmeralda (2,288,414)	1,674,508	65,220	1,739,728
Lyon (1,282,642)	407,738	276,287	684,025
Mineral (2,442,031)	718,503	375,603	1,094,106
Grand Total	2,962,159	764,074	3,726,233

Between 1970 and 2011 the combined population of the study area increased 332.6 percent. In comparison, the United States population increased by 52.9 percent and the populations of California and Nevada increased by 88.2 percent and 452.1 percent, respectively. The growth in population was followed by a growth in employment. During the same period (1970 through 2011) employment in the study area grew 244.8 percent. In the United States there was a 92.6 percent increase in employment, in California a 120 percent increase and a 484 percent increase in Nevada. These statistics indicate that the states and the study area have experienced 40 years of steady growth that exceeds that of the United States. Long-term steady growth of population, employment, and real personal income is generally an indication of a healthy, prosperous economy.

The following section provides brief summaries of the demographic and economic trends for each of the five study area counties. Refer to "Study Area Demographic and Economic Data" (Headwaters 2013) for complete demographic and economic data tables (see the project record). The county descriptions below are primarily derived from county websites, and data from the U.S. Census Bureau.

Nevada

Four counties in Nevada are wholly or partially within the planning area (table 3-7). Land area and population are not necessarily correlated.

Douglas County. Douglas County is located on the northern edge of the project area. Due to fertile soils on the valley floor, Douglas County has some of the most productive agricultural areas in the State and is able to support the population centers of Minden and Gardnerville. Many retirees also come to Douglas County for the scenic values and temperate climate, while many tourists frequent the area for recreation and gaming opportunities (Douglas County, Nevada 2012). These populations support the four largest employment sectors in the area: education, health care, entertainment, and recreation (Headwaters 2013).

In 2011 the population of Douglas County was 47,058 people, a 569 percent increase from 1970. This is the largest increase in population among the six counties in the study area and exceeds the growth rate of Nevada by approximately 119 percent. Douglas County is also the most suburban county in the study area, providing housing and retail opportunities outside Carson City. Recreation opportunities range from fishing and river rafting to horseback riding and ATV (all-terrain vehicle) tours. Hiking and biking are also major recreation activities. Over the past several years, Douglas County has seen an increase in demand for healthier tourism activities, prompting them to create a network of both urban bike paths and mountain biking trails.

For the 2006 to 2010 average, the median household income in the county was $60,721. Per capita income was $35,239, and 7.9 percent of people fell below the poverty level (U.S. Census Bureau 2010c). Unemployment rates have increased over the past several years, with a low of 4.3 percent in 2004 and a high of 14.5 percent in 2010. The unemployment rate for 2011 was 14.4 percent (Headwaters 2013).

Esmeralda County. Esmeralda County is a rural county with a large amount of undeveloped open space. The largest town in the county is Goldfield with an estimated population of 415 (Esmeralda County 2011). Esmeralda County experienced the slowest growth between 1970 and 2011 with an increase of 24 percent. This growth rate is half that of the United States and 7 percent of the study area. The county has a population of 897 and has experienced a 7.4 percent decrease in population over the last 10 years (Headwaters Demographics 2013).

Today, the sparsely populated county continues to rely on a mining, ranching, and agricultural economy, as well as tourism, recreational resources, and an emerging potential for renewable energy production (Esmeralda County 2010). Recreationally, Esmeralda County offers hunting, fishing, hiking, and four-wheel drive trails, as well as old mining camps and ghost towns (Esmeralda County 2011). There is a significant population of retirees in Esmeralda County. Fish Lake Valley, for example, has a 30 to 40 percent retirement base; and recreation, especially birding, is attractive for retirees. Median household income was $44,118 (per 2005 to 2009 average). Per capita income was $30,763; and 7 percent of people fell below the poverty level. Unemployment rates in the county have ranged from a high of 8.6 percent in 2000 to a low of 3.2 percent in 2007. Unemployment in 2010 was 8.3 percent (U.S. Department of Labor, Bureau of Labor Statistics 2011). Esmeralda County had the largest proportion of government-employed workers in 2008, at 20 percent, with the national average at 13.5 percent (Headwaters 2013). The majority of government employees are with state and local governments.

Lyon County. Lyon County is located in western Nevada, bordering California on its southern edge. The economy relies heavily on agriculture, both in rural areas and near the population centers of Fernley and Yerington (City of Fernley, Nevada 2012). Manufacturing and construction are also important employment sectors in Lyon County (U.S. Census Bureau 2010c). In the 1950s, the Anaconda Mine opened just west of Yerington and was the third largest open-pit copper mine in the world until it shut down in 1978 (City of Yerington, Nevada 2012). Lyon County has transformed from mostly rural areas to suburban areas as the Northern Nevada region continues to grow. For 3 out of the past 10 years, it has been one of the fastest growing counties in the United States (Lyon County, Nevada 2012).

In 2011, the population of Lyon County was 51,937 people, a 50.5 percent increase since 2000. The population density is approximately 26 people per square mile (U.S. Census Bureau 2012a). Due to the close proximity to various lakes and rivers, freshwater fishing and boating are popular recreation activities, as is camping, visiting historic sites, and range shooting. There is a possibility that the Anaconda Mine will be reopened in the near future for production; however, there is a current effort by the Environmental Protection Agency and the mine's current owner to clean up the toxic remains at the site.

For the 2006 to 2010 average, the median household income for Lyon County was $48,433. Per capita income was $21,041, and 12.8 percent of people fell below the poverty level (U.S. Census Bureau 2010c). Unemployment rates have increased over the past several years, with a low of 5.5 percent in 2004 and a high of 17.8 percent in 2010. The unemployment rate for 2011 was 17.5 percent (Headwaters 2013).

Mineral County. Mineral County is located in southwestern Nevada, bordering California. Hawthorne is the county seat and the largest population center in the county (Mineral County, Nevada undated). Mining has been historically very important to the area, and there continues to be active mining operations as well as a high potential for future mineral extraction. In 1930, the Naval Ammunition Depot, now called the

Hawthorne Army Depot, was established. The depot is used for ammunition storage and maintenance and, at its peak during 1945, employed over 5,600 people (Nevada Division of Environmental Protection 2012). Although the current employment levels are much lower and it is now run by a private contractor, the depot remains vital to the economy of Hawthorne and Mineral County. The Marine Corps Mountain Warfare Training Center, located near Bridgeport, California, also utilizes national forest system lands and BLM land in Mineral County to perform training exercises.

In 2010, the population of Mineral County was 4,760 people, a 6.1 percent decrease from 2000. Walker Lake, just north of Hawthorne, provides many recreation opportunities, including fishing and boating. Hunting, rock hounding, and OHV tours are also popular activities.

Mineral mining activities in the area help support the local economy, as well as hard rock mining. There is some interest in geothermal energy production near Aurora.

For the 2006 to 2010 average, the median household income for Mineral County was $35,446. Per capita income was $23,226; and 19.1 percent of people fell below the poverty level (U.S. Census Bureau 2010c). Unemployment rates have increased over the past several years, with a low of 5.4 percent in 2004 and a high of 13.9 percent in 2010. The unemployment rate for 2011 was 13.3 percent (Headwaters 2013).

California

The following California counties contain fragments of Bi-state DPS habitat managed by the Carson and Bridgeport ranger districts. The descriptions below describe the entire county, which may not accurately represent the lands with sage grouse habitat or populations.

Alpine County. Alpine County is located in eastern California, just south of Lake Tahoe and bordering Nevada. It is the smallest county in California by both size and population. Alpine County was formed when prospectors and pioneers came to the eastern Sierra looking for silver after the Comstock Lode began in 1859, forming temporary mining towns and producing a sudden spike in population. When very little silver was discovered, most people left, dropping the population to a few hundred people by the 1920s. In the past few decades, however, outdoor recreation and tourism have increased the population and created a new, steady source of economic activity (Alpine County Chamber of Commerce 2012).

The population of Alpine County was 1,167 people in 2011, which is a 3.4 percent decrease since 2000. The population density of the area is approximately two people per square mile (U.S. Census Bureau 2012a). There are no incorporated towns in Alpine County. Much of the economy is supported by tourism, primarily based on two major ski resorts and the outdoor recreation industry. About 96 percent of the land is under public ownership, providing plenty of space for snow sports, hunting and fishing, camping, and rafting. Education and healthcare and public administration are also strong sectors of the economy in Alpine County.

For the 2006 to 2010 average, the median household income was $63,478. Per capita income was $32,159; and 13.1 percent of people fell below the poverty level (U.S. Census Bureau 2010c). Unemployment rates have increased over the past several years, with a low of 6.6 percent in 2006 and a high of 15.4 percent in 2010. The unemployment rate for 2011 was 15.1 percent (U.S. Department of Labor, Bureau of Labor Statistics 2012). These numbers do not account for expected seasonal layoffs that are common for recreation employers, such as ski resorts (Headwaters 2013).

Mono County. Mono County is located in the east central portion of California, to the east of the Sierra Nevada between Yosemite National Park and Nevada. Bridgeport is the county seat and Mammoth Lakes is the only incorporated town in the county.

The population of Mono County has grown 9 percent between 2000 and 2011, with approximately 47 percent of the population between the ages of 20 and 50 and a median age of 36.5 years.

Mono county employment statistics indicate an emphasis on outdoor recreation in the economy with close to 30 percent of the working population employed in the art, entertainment, recreation, and accommodation sector.

Economic Conditions

Economic analysis is concerned with the production, distribution, and consumption of goods and services. This section provides a summary of economic information, including trends and current conditions. It also identifies and describes major economic sectors in the socioeconomic study area that can be affected by management actions. Economic activities that rely or could rely on public lands, such as recreation and livestock grazing, are the economic activities that are most likely to be affected by the proposed amendment.

Employment in the study area includes the 13 sectors identified in table 3-8. This table provides a measure of how employment is distributed through in the counties and, by association, how the sectors contribute to that economy. For instance, the education, health care, and social assistance sector, on average, employees 15.9 percent of the workforce in the six counties. This sector is a driver for the economy given the stable workforce in this sector, however there are exceptions. The table points out how important the agriculture, mining, and hunting and fishing sector is to Esmeralda County, and the role art, entertainment, accommodation, and food plays in the Mono County economy. For comparison, the agriculture, mining, and hunting and fishing sector in Esmeralda County includes 30.9 percent of the workforce. In the six county study area this sector only employs 2.3 percent of the work force and it is represented by 1.9 percent of the national workforce.

To break this sector into its two primary components, agriculture in Esmeralda County provides employment for 36 individuals (Headwaters Agriculture 2013), which is equivalent to 10.6 percent of the work force. Mining provides employment to 15 individuals out of the 340 civilian employees over the age of 16 (Headwaters Mining 2013). There is no data for hunting and fishing employment for the six counties.

The agriculture, mining, and hunting and fishing sectors are commodities-based sectors in the study area that provide resource-based employment in the study area. Portions of these sectors rely on the availability of resources on public lands. Regulatory mechanisms that limit access to resources on public lands could affect businesses in this sector dependent on the resources. Based on sector-specific data from the U.S. Census, Esmeralda County has the majority of job opportunities: 4.4 percent of the employment opportunities are in mining-related jobs and 10.6 percent are in agriculture. According to the Agriculture summary from Headwaters (2013) there are 19 farms in Esmeralda County and 3 of those are categorized as ranches. These ranches would be the only ones with the potential to use public lands as part of their operations.

The individual county numbers are slightly deceiving; they are based on the total private employment for the individual counties (340 persons greater than 16 years of age [Headwaters Demographics 2013]). The 10.6 percent of jobs in the agricultural sector in Esmeralda County represent approximately 36 individual jobs out of the total workforce population of 340 individuals. In comparison, government employs 96 individuals (28 percent), 88 state and local, and 6 Federal (Headwaters 2013).

Table 3-8. Economic sectors, employment, and personal income

Category	California		Nevada				County Region	U.S.
	Alpine County	Mono County	Douglas County	Esmeralda County	Lyon County	Mineral County		
Civilian employed population >16 years	529	8,001	21,172	340	20,198	1,761	52,001	141,832,499
Agriculture, forestry, fishing & hunting, mining	6	313	359	105	344	84	1,211	2,669,572
Construction	42	669	1,999	14	1,611	98	4,433	9,642,450
Manufacturing	40	179	1,824	13	2,478	135	4,669	15,281,307
Wholesale trade	4	4	656	5	431	25	1,125	4,158,689
Retail trade	14	851	2,657	19	3,009	167	6,717	16,336,915
Transportation, warehousing, and utilities	28	219	695	14	1,545	93	2,594	7,171,438
Information	7	99	113	24	258	0	501	3,256,311
Finance and insurance, and real estate	6	805	1,389	15	1,140	55	3,410	9,738,275
Professional, scientific, management, administration, & waste management	46	665	1,801	5	1,163	219	3,899	14,942,494
Education, health care, & social assistance	129	1,227	3,736	51	3,210	312	8,665	31,927,759
Arts, entertainment, recreation, accommodation, & food	52	2,237	3,476	6	2,029	168	7,968	12,779,583
Other services, except public administration	55	237	868	21	932	26	2,139	6,960,820
Public administration	100	496	1,599	48	2,048	379	4,670	6,966,886
Percent of Total								
Agriculture, forestry, fishing & hunting, mining	1.1	3.9	1.7	30.9	1.7	4.8	2.3	1.9
Construction	7.9	8.4	9.4	4.1	8.0	5.6	8.5	6.8
Manufacturing	7.6	2.2	8.6	3.8	12.3	7.7	9.0	10.8
Wholesale trade	0.8	0.0	3.1	1.5	2.1	1.4	2.2	2.9
Retail trade	2.6	10.6	12.5	5.6	14.9	9.5	12.9	11.5
Transportation, warehousing, and utilities	5.3	2.7	3.3	4.1	7.6	5.3	5.0	5.1
Information	1.3	1.2	0.5	7.1	1.3	0.0	1.0	2.3
Finance and insurance, and real estate	1.1	10.1	6.6	4.4	5.6	3.1	6.6	6.9
Professional, scientific, management, administration, & waste management	8.7	8.3	8.5	1.5	5.8	12.4	7.5	10.5

Category	California		Nevada				County Region	U.S.
	Alpine County	Mono County	Douglas County	Esmeralda County	Lyon County	Mineral County		
Education, health care, & social assistance	24.4	15.3	17.6	15.0	15.9	17.7	16.7	22.5
Arts, entertainment, recreation, accommodation, & food	9.8	28.0	16.4	1.8	10.0	9.5	15.3	9.0
Other services, except public administration	10.4	3.0	4.1	6.2	4.6	1.5	4.1	4.9
Public administration	18.9	6.2	7.6	14.1	10.1	21.5	9.0	4.9

Looking at the total private employment in the study area, Headwaters (2013) indicates that there are 340 private jobs in Esmeralda County. Fifteen of those are in the Mining sector. No mining proprietors are counted in the 67 total business proprietors for the county. Mining does occur in Esmeralda County, so we assume that to support the mining ventures in Esmeralda County the proprietors are from outside the county and a number of the workers for these mines also travel from outside the county (we have little data beyond this).

The travel and tourism sector includes a combination of: retail trade, passenger transportation, arts, entertainment, recreation, and accommodation and food employees (Headwaters 2013). Tourism-related employment is a substantial portion of total employment in the study area (except Esmeralda County), but it has declined by 27.2 percent between 1998 and 2011 (Headwaters Tourism 2013). During this same period non-travel and tourism employment grew by approximately 21.9 percent (Headwaters Tourism 2013). In 2011 Alpine County had the largest percent of total travel and tourism employment (89.6 percent) and Esmeralda County had the smallest (1.7 percent). The average for the study area was 38 percent (Headwaters Tourism 2013). In 2011 accommodations and food was the largest component of travel and tourism-related employment (32.6 percent of total jobs) in the study area, and passenger transportation was the smallest (0.2 percent of total jobs).

Employment results for the socioeconomic study area as a whole are driven mostly by Douglas and Lyon counties, which combined account for approximately 79 percent of the employed workers in the study areas. The industries with the largest numbers of employees are the education, health care, and social assistance field and the art, entertainment, recreation, and accommodation and food service. When compared county to county, the percent of workers in any one sector is fairly consistent with the percent of employees in that sector and within the study area (table 3-8).

For the other counties retail trade, education, art and entertainment (which includes accommodations), and public administration all have high employment numbers when compared to the population of the counties and the overall number of employees. For more specifics about the existing condition for economics, please see the social-economic specialist report in the project record.

Environmental Effects

Management Indicators. Changes in output value and income flow for the measures identified in chapter 1 may be evaluated depending upon results of the estimates identified for the various economic sectors. A qualitative discussion of how changes between the proposed action and alternatives affect the local economic conditions is provided.

Alternative A – No Action

Direct/Indirect Effects. Alternative A is the no-action alternative. Under this alternative, there would be no change to current management direction or the economic well-being of the study area. Although many of the regulatory mechanisms identified in the proposed amendment are already being applied to projects proposed in Bi-state DPS habitat, current Forest Service forest plans and BLM resource management plans do not guarantee that mitigations will be consistently applied for each project type that occurs on public lands. Since there will be no formal change in the management of the amendment area under this alternative, resource use and associated economic activity with resources within the amendment area will be similar to those discussed in the existing conditions.

Effects to Livestock Grazing: Alternative A, the no-action alternative, will not change the current grazing management in the amendment area. Domestic livestock grazing would continue under the terms and conditions of current grazing permits until updated by allotment level NEPA analyses. Since grazing potential for allotments containing Bi-state DPS habitat would continue to be 85,886 AUMs (animal unit

months) annually, this alternative would not impact the ability of livestock operators to fully utilize permitted AUMs. If permitted AUMs on allotments within the amendment area were fully utilized, the resulting economic activity would support approximately 100 jobs (direct, indirect, and induced) and $1.9 million in wages and proprietor's income in the seven-county study area. Although permit holders have the right to fully utilize permitted Federal forage, many local ranchers have taken voluntary reductions in recent years in order to maintain long-term range conditions. Over the past 5 years Forest Service and BLM have billed for less than half of all AUMs permitted within the amendment area. On annual average, there are 21,467 cattle AUMs and 13,661 sheep AUMs billed on active allotments in the amendment area. This forage is estimated to support 63 jobs (direct, indirect, and induced) and $1.1 million in local income within the seven counties.

Under Alternative A, permit holders will continue to pay Federal grazing fees equal to $1.35 per AUM. On annual average grazing fees associated with the amendment area are anticipated to generate more than $47,000 in Federal revenue. In accordance with Federal and state statutes, a portion of this revenue will be distributed back to state and local governments. Twenty-five percent of Federal revenue from livestock grazing on Forest Service lands is distributed back to Nevada and California to fund public schools and roads in the county when revenue was generated (16 U.S. Code § 500). The redistribution of Federal grazing fees from BLM lands depends on whether grazing allotments reside within or outside of a grazing district. Fifty percent of Federal grazing fees on section 15 (outside grazing district) and 12.5 percent of revenue from section 3 (inside a grazing district) are distributed back to the state under the Taylor Grazing Act. In Nevada, money derived revenue from the Taylor Grazing Act is deposited in the State treasury in a special fund designated the Nevada Taylor Grazing Act Range Improvement Fund and distributed back to counties proportionately for range improvement projects (Nevada Revised Statutes § 568.030).

Since annual permitted use levels will remain unchanged under alternative B, the modified proposed action is not anticipated to have any measurable effect on the social environment of surrounding communities. While the combination, timing, and location of conservation practices may have short-term disparate effects on individual permit holders, access to Federal forage on the 87 allotments in amendment area will continue to support traditional uses and values associated with the ranching way of life. By promoting the long-term health and viability of the project area, management tools implemented to achieve goals and objectives under alternative B will reinforce the longstanding bonds between local ranching families and these rangelands. In doing so, management practices under this alternative will contribute to the preservation of ranching heritage and community values associated with livestock production.

Effects to Mineral Exploration & Development: Under the no-action alternative mineral activities with the amendment area would proceed without any changes. The BLM would continue to use the Instruction Memorandum NV-2013-009 for Bi-state Sage Grouse for Minerals Activities (BLM 2012c) until a plan amendment can be completed. On annual average there are 17,000 active mining claims within the amendment area. As described in the existing conditions, mining within the amendment area includes gold, silver, lithium carbonate, diatomite, sand, and gravel. Minerals specialists expect that the production of gold, silver, diatomite, sand, and gravel would remain the same across all alternatives. Active mining claims are subject to an annual maintenance fee of $140 per claim. These revenues are paid to the Treasury Department and put into a general fund to cover the cost of mine reclamation projects across the West. On annual average, maintenance fees associated with active claims within the amendment area generate more than $2.3 million. Although there are no statutes which require these revenues to be used for reclamation projects in counties where fees were generated, some Federal funds collected through claim maintenance fees are spent on projects within the seven-county area.

In addition to locatable minerals, 7,614 acres of geothermal resources in the Bridgeport District are leased and anticipated to be developed over the next 10 to 15 years. Proposals to develop these leases will undergo project-level NEPA analysis and will be required to include design criteria to mitigate adverse effects on Bi-state DPS. Under this alternative, 22,174 acres of pending geothermal lease nominations within the Bridgeport District and would be made available for leasing with no-surface-occupancy (NSO) stipulations in habitat. All commercial development of geothermal leases will have to be developed outside of Bi-state DPS habitat. Based on the reasonably foreseeable scenario for the amendment area, potential geothermal projects within the amendment area could eventually produce 25 megawatts of commercial electricity annually.

Federal, state, and county revenue would be generated from the leasing and production of 7,614 acres of geothermal resources currently leased, and the pending additional 22,174 acres of geothermal minerals which would be made available for leasing upon completion of this EIS. In accordance with the Energy Policy Act of 2005, a portion of geothermal revenues from lease sales, annual lease rents, and royalties on commercial production are distributed back to state and local governments. Under this statue the Federal government retains 25 percent of the revenues from royalties and leasing; 50 percent total revenue is distributed back to states to plan, construct, and maintain public facilities and provide public services; and the remaining 25 percent is returned to counties where Federal leasing and royalty revenue was generated.

While economic activity associated with mineral resources within the amendment area is estimated to support 157 jobs[9] and $8.8 million in wages and proprietor's income on annual average within the seven-county local economy, these estimates likely understate the total economic contribution of amendment area minerals to the local economy. Under alternative A, additional local employment and income would be supported by saleable and locatable minerals extracted from the amendment area and from the redistribution of Federal revenue from future geothermal leasing and development. While these economic contributions could not be estimated because of data limitations, it is important to acknowledge that additional local employment and income may be associated with Federal minerals within habitat areas.

Effects to Recreation and Special Uses: Under alternative A, recreation management would continue under current guidance and policy and existing recreation opportunities in the study area would be maintained. People would continue to recreate on public lands as they have done in the past. Recreational experiences supported by Forest Service and BLM lands within the amendment area would continue to contribute to the overall quality of life enjoyed by local residents and stimulate economic activity throughout the local economy. As discussed in the existing conditions, recreationists traveling to these areas spend money in the local economy and stimulate employment and income in numerous industrial sectors that support the travel and tourism industry. Although the level of employment and income directly attributed to visitation to the amendment area could not be estimated, the magnitude and importance of these economic contributions to rural communities surrounding the amendment area are not anticipated to change under the no-action alternative.

Issuance of recreation special uses and lands authorizations would continue using Forest Plan direction, interim guidance, and existing policy and direction. Site-specific environmental analysis would determine stipulations, timing, and location of use. Since access would not be limited seasonally, permanently or through modifications of permits except through normal permitting processes, alternative A would not result in impacts to revenue of commercial outfitters or managing agencies attributable to BLM special recreation permits and Forest Service special use authorizations.

[9] These jobs include and full-time, part-time, and temporary jobs directly, indirectly, and induced by mineral development within the amendment area.

Cumulative Effects. There would be no cumulative effects associated with the no-action alternative since there are no direct or indirect effects to the economy in the study area associated with this alternative.

It is speculative to draw conclusions from the limited data available. Census data provide an indication of trends over the past few years, but they do not provide a clear picture of future trends. For the data available the trends visible are a decrease in the agricultural sector and the increase in recreation and accommodation sectors. No action would maintain a status quo that has been in place since the current management direction was adopted.

Alternative B – Proposed Action

Direct/Indirect Effects. Alternative B is the modified proposed action. This alternative includes more specific standards and guidelines identified for managing anthropogenic uses and to meet Goal 2: *Bi-state DPS and their habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.*

Effects to Livestock Grazing: Alternative B contains multiple standards and guidelines that are designed to eliminate or reduce negative impacts from domestic livestock grazing. Although there would be no change in the amount of Bi-state DPS habitat open for grazing, or in the number of AUMs permitted, the restrictive utilization standards under this alternative may force local livestock management practices to change. Under this alternative permitted use within the amendment area would remain at 85,886 AUMs a year until further site-specific analysis was conducted. While permitted use levels will remain constant, reduced allowable utilization in Bi-state DPS habitat will likely have a direct affect livestock grazing.

Compliance with new utilization standards proposed under alternative B may result in changes in grazing systems, increased herding of livestock, shortened seasons of use, or reductions in permitted livestock numbers. The extent to which management actions under alternative B will further contribute to disparities between permitted and billed use within the amendment area is unclear. While permitted use will remain constant, adjustments in seasonal use and restrictions on the construction of range improvements may further restrict the ability of livestock operators to fully utilize permitted AUMs. Over the long term, implementation of alternative B is anticipated to move rangeland conditions toward the Bi-state DPS habitat desired conditions which could increase vegetation productivity and forage production.

Economic activity and Federal grazing fees associated with livestock grazing within the amendment area would be less under alternative B than under alternative A. Since site-specific analysis is needed to determine how restrictions under this alternative will affect allotment use, changes in local employment, income, and county revenue from the redistribution of Federal grazing fees cannot be quantified at this time.

In addition to potential adverse economic impacts, reduced access to Federal forage under alternative B may have adverse social impacts which threaten the ranching way of life. The financial burden of trying to offset Federal forage losses with more expensive private or supplement feed may force some local ranchers to transition land and other ranch resources from livestock production to other agricultural uses or abandon agricultural practices all together. Shifts away from these longstanding agricultural land uses may threaten traditional values of local ranchers and inhibit future generation's ability to learn and connect with the heritage of their ancestors.

Effects to Mineral Development: More restrictive standards and guidelines would be implemented under alternative B to improve vegetation conditions and to minimize negative impacts and increase positive impacts from discretionary and nondiscretionary actions. Under this alternative, new leases, applications for permit to drill, and utilization plans would still be authorized after completion of site-specific NEPA,

but would be subject to standard stipulations which would mitigate adverse effect on the Bi-state DPS. Since valid existing rights apply, only new development (including proposals for mine expansion) would be subject to standards and guidelines implemented under this alternative

While these standards and guidelines would only have minor impacts on oil and gas exploration and production they would have a much greater impact on geothermal exploration and production. Consequently most geothermal exploration would likely take place outside of habitat. Solid leasable minerals would not be expected to be permitted in habitat, but existing gravel pits would likely continue some level of seasonal production. Locatable minerals would have impacts from site-specific NEPA and likely seasonal restrictions and other mitigations.

Since valid existing rights apply, alternative B is should not have any effect on current gold, silver, lithium carbonate, diatomite, sand, and gravel production within the amendment area. Minerals specialists expect that the production of gold, silver, diatomite, sand, and gravel would remain the same across all alternatives. On annual average, there would continue to be 17,000 active mining claims within the amendment area and these claims would continue to require an annual maintenance fee of $140 per claim which paid to the Federal government and put into a general fund to cover the cost of mine reclamation projects across the West. On annual average, maintenance fees associated with active claims within the amendment area would generate more than $2.3 million for the Abandoned Mine Reclamation Fund. Although there are no statutes which require these revenues to be used for reclamation projects in counties where fees were generated, some Federal funds collected through claim maintenance fees are spent on projects within the seven-county area.

In addition to locatable minerals, 7,614 acres of geothermal resources in the Bridgeport District are leased and anticipated to be developed over the next 10 to 15 years. Proposals to develop these leases will undergo project-level NEPA analysis and would be required to include design criteria to mitigate adverse effects on Bi-state DPS. Under this alternative, 22,174 acres of pending geothermal lease nominations within the Bridgeport District and would be offered for lease subject to these standards and guidelines. All commercial development of geothermal leases will have to be developed outside of Bi-state DPS habitat. Based on the reasonably foreseeable scenario for the amendment area, potential geothermal projects within the amendment area could eventually produce 35 megawatts of commercial electricity annually.

Federal, state, and county revenue would be generated from the leasing and production of 7,614 acres of geothermal resources currently leased, and the pending additional 22,174 acres of geothermal minerals which would be made available for leasing upon completion of this EIS. In accordance with the Energy Policy Act of 2005, a portion of geothermal revenues from lease sales, annual lease rents, and royalties on commercial production are distributed back to state and local governments. Under this statue the Federal government retains 25 percent of the revenues from royalties and leasing, 50 percent total revenue is distributed back to states to plan, construct, and maintain public facilities and provide public services, and the remaining 25 percent is returned to counties where Federal leasing and royalty revenue was generated.

While economic activity associated with mineral resources within the amendment area is estimated to support 189 jobs[10] and $10.4 million in wages and proprietor's income on annual average within the seven-county local economy, these estimates likely under state the total economic contribution of amendment area minerals to the local economy. Under alternative A, additional local employment and income would be supported by saleable and locatable minerals extracted from the amendment area and from the redistribution of federal revenue from future geothermal leasing and development. While these economic contributions could not be estimated because of data limitations, it is important to acknowledge

[10] These jobs include and full-time, part-time, and temporary jobs directly, indirectly, and induced by mineral development within the amendment area.

that additional local employment and income may be associated with Federal minerals within habitat areas.

Recreation: Recreation could potentially be affected by implementation of alternative B. Changes in recreation settings and opportunities could result from implementation of the standards and guidelines in the proposed action. Timing limitations and limitations placed on construction could result in corresponding changes in the certain types of recreation opportunities that depend on free, unmanaged access and desired recreation experiences and associated benefits. Recreational experiences most likely to be affected by management actions under alternative B are motorized.

Opportunities for motorized recreation are limited to BLM lands within the amendment area. Although management activities included in the modified proposed alternatives could affect OHV use, the effects are not projected to be substantial. Under this alternative, all acres of open designation on BLM lands would remain available for OHV use. Agency recreation specialists anticipate that timing and location limitations may inconvenience some recreationists, but will not result in measurable impacts on recreation visitor days. Since management actions under this alternative are not anticipated to have a net effect on annual recreational visits to the amendment area, economic activity associated with recreation to the amendment area would be similar to activity under alternative A. Recreation-related spending by visitors to the amendment area would continue to attract new money to rural communities and support local employment and income across the seven counties.

All OHV events would continue to be analyzed under site-specific environmental analysis. All permits and proposals would be evaluated and modified if necessary under the existing interim direction for both agencies. Permit modifications are anticipated to be minor and may include stipulations on the location and timing of events. Since the majority of organized OHV events occur after lekking, and the distance needed to avoid sensitive habitat is relatively small, event organizers would likely be able to avoid impacts altogether without incurring addition costs. Thus, alternative B is not anticipated to result in a loss of commercial revenue to recreation service providers, or a loss of permit-generated fee revenue for the BLM and Forest Service as managing agencies.

Cumulative Effects. The social and economic environment in which we live is constantly changing in response to local, regional, and national, and global factors. While census data may provide an indication of recent social and economic trends, it does not attempt to forecast future social or economic conditions. Although social and economic conditions of the seven-county study area may continue to change over the next 15 years, management actions proposed under alternative B are anticipated to provide Forest Service and BLM with the flexibility and authority to manage amendment area resources to mitigate adverse effects on Bi-state DPS habitat and populations while continuing to support mandated multiple uses which contribute to the health and well-being of local communities.

Recent trends indicate that the region's economic base is slowly transitioning from the agricultural sector to the service sector which the region's growing travel and tourism industry. Although management actions proposed under alternative B would continue to support agricultural and recreational uses on Forest Service and BLM lands within the amendment area, range management under this alternative is recognized as having a potentially negative cumulative effect on the social and economic climate of the seven-county study area.

While an allocation decision is not being made in this EIS, standards and guidelines proposed under alternative B are anticipated to have a direct and indirect effect on forage use within the amendment area. More restrictive livestock grazing on the 87 allotments which contain Bi-state DPS habitat has the potential to be detrimental to social and economic vitality of smaller agricultural communities within the seven-county study area. The degree to which more restricted use of allotments in Bi-state DPS habitat

will have cumulative effects on local communities and the regional agricultural sector depends largely on permittees' ability to adapt to standards and guidelines which may restrict their ability to utilize grazing rights authorized under Federal grazing permits. While ranchers may choose to: (a) graze on their own properties if they have sufficient grazing land; (b) find and secure private pasture and rangeland leases during summer months; (c) purchase hay and grains to replace forage in winter, early spring, or late fall; additional costs to secure additional range or supplemental feed may force some local ranchers to drastically reduce herd sizes or stop livestock production all together.

In addition to potential adverse cumulative economic impacts, reduced access to Federal forage under alternative B may have adverse social impacts which threaten the ranching way of life. The financial burden of trying to offset Federal forage losses with more expensive private or supplement feed may force some local ranchers to transition land and other ranch resources from livestock production to other agricultural uses or abandon agricultural practices all together. Shifts away from these longstanding agricultural land uses may threaten traditional values of local ranchers and inhibit future generation's ability to learn and connect with the heritage of their ancestors.

There are not anticipated to be any cumulative social or economic effects from standards and guidelines proposed under alternative B.

Alternative C

Direct/Indirect Effects. Under this alternative, standards and guidelines that are more conservation oriented and more restrictive to lands/recreation activities are proposed in order to meet Goal 2: *Bi-state DPS and their habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.*

Livestock Grazing: Alternative C would close all grazing allotments containing Bi-state DPS habitat. In the absence of grazing activities, no grazing fees would be collected and no local employment or labor income would be supported by livestock grazing on the 87 allotments within the amendment area. The prohibition of livestock grazing on these allotments would reduce local operators' access to affordable forage. Although forage provided by these allotments account for only a small portion of the annual forage needed to support local herds, forage on Forest Service and BLM allotments in the amendment area offset more expensive hay and grain feed during critical times of the year. To compensate for these forage losses permit holders would have to supplement forage with more expensive feed or find and graze on other private lands at an increased fee. Without access to Federal forage, many producers would be forced to drastically reduce their herd sizes or cease livestock production all together.

The elimination of livestock grazing on these Federal public lands would create a ripple effect in the local economy which would adversely affect employment and income in three ways: (1) direct effects attributable to employment associated with the ranches; (2) indirect effects attributable to industries that supply materials, equipment, and services to the ranches; and (3) induced effects attributable to personal spending by the ranch owners, employees, families, and supporting industries. In this manner, elimination of Federal grazing within the amendment area has the potential to effect employment and income in nearly every sector of the seven-count local economy.

The potential social consequences of eliminating livestock grazing on Federal lands within the amendment area are not fully captured in traditional measures of employment and income. Socially, livestock ownership and ranch life is a way of life. For most ranching families, raising livestock is more of a tradition deeply rooted in their personal history than a job. Increased costs to feed and raise livestock may threaten the traditional values associated with ranch life and cause shifts away from longstanding

agricultural land uses. As more lands are taken out of agricultural production, future generation's ability to learn and connect with the heritage of their ancestors will continue to decline.

Mineral Development: Similar to alternative B, standards and guidelines implemented under alternative C would include additional restrictions on proposed and existing activities in the amendment area to improve vegetation conditions and mitigate adverse effects of mineral development on Bi-state DPS habitat and populations. Standards and guidelines under alternative C would be more conservative than those proposed under alternative B.

Many of the operating mines, existing gravel pits, and exploration projects would continue operating for a while but new proposals in habitat would be significantly curtailed on both discretionary and nondiscretionary project proposals under alternative C. If implemented, the Forest Service would petition the BLM to withdraw the locatable mineral rights subject to valid existing claims from the habitat area. Once the withdrawal was completed no new claims would be valid. Although current mining operations would not likely be impacted by the withdrawal of the mineral rights, their expansion and exploration potential would be substantially reduced.

The impacts to locatable mineral exploration and mining would be considerable. Valid existing rights followed by surface use determinations and/or validity exams would be performed on all new proposals for exploration and on existing mining claims. Although mineral specialists expect that the production of gold, silver, diatomite, sand, and gravel would remain the same across all alternatives, validity examines are expected to adversely affect mining of lithium carbonate because nearly one-third of lithium claims are located in Bi-state DPS habitat. These validity exams would likely indicate many of the claims in habitat are invalid and create additional uncertainty around plan operation approvals, causing a 20 percent annual decline in the number of active mining claims within the amendment area over the next 10 to 15 years. On annual average, active mining claims within the amendment area would drop to 5,467 claims over the next 15 years. These claims would continue to require an annual maintenance fee of $140 per claim which paid to the Federal government and put into a general fund to cover the cost of mine reclamation projects across the West. On annual average, maintenance fees associated with active claims within the amendment area generate more than $76,000. Although there are no statutes which require these revenues to be used for reclamation projects in counties where fees were generated, some Federal funds collected through claim maintenance fees are spent on projects within the seven-county area.

In addition to locatable minerals, 7,614 acres of geothermal resources in the Bridgeport District are leased and anticipated to be developed over the next 10 to 15 years. Proposals to develop these leases would undergo project-level NEPA analysis and would be required to include design criteria to mitigate adverse effects on Bi-state DPS. Under this alternative, 22,174 acres of pending geothermal lease nominations within the Bridgeport District and would be offered for lease subject NSO stipulations in habitat areas. All commercial development of geothermal leases will have to be developed outside of Bi-state DPS habitat. Based on the reasonably foreseeable scenario for the amendment area, potential geothermal projects within the amendment area could eventually produce 15 megawatts of commercial electricity annually under this alternative.

Federal, state, and county revenue would be generated from the leasing and production of 7,614 acres of geothermal resources currently leased, and the pending additional 22,174 acres of geothermal minerals which would be made available for leasing upon completion of this EIS. In accordance with the Energy Policy Act of 2005, a portion of geothermal revenues from lease sales, annual lease rents, and royalties on commercial production are distributed back to state and local governments. Under this statue the Federal government retains 25 percent of the revenues from royalties and leasing; 50 percent total revenue is distributed back to states to plan, construct, and maintain public facilities and provide public services; and the remaining 25 percent is returned to counties where Federal leasing and royalty revenue was generated.

While economic activity associated with mineral resources within the amendment area is estimated to support 113 jobs[11] and $6.4 million in wages and proprietor's income on annual average within the seven-county local economy, these estimates likely understate the total economic contribution of amendment area minerals to the local economy. Under alternative A, additional local employment and income would be supported by saleable and locatable minerals extracted from the amendment area and from the redistribution of Federal revenue from future geothermal leasing and development. While these economic contributions could not be estimated because of data limitations, it is important to acknowledge that additional local employment and income may be associated with Federal minerals within habitat areas.

Mineral Development: Fluid Minerals Only additional Regulation Option under Alternative C: This optional addition of regulation only applies to fluid minerals with includes geothermal and oil and gas under alternative C.

Under this regulation option, Bi-state DPS habitat would be closed to additional fluid mineral leasing. All parcels located in Bi-state DPS habitat currently nominated for leasing would be deferred and the development of Federal fluid mineral resources would have to come some distance outside habitat. Restrictions on leasing and development of fluid minerals within Bi-state DPS habitat would adversely affect the potential for commercial geothermal energy production in the amendment area. Under this regulation option, development of geothermal resources in the amendment area could result in the commercial production of 10 megawatts of geothermal energy. While additional economic impacts would be generated from the construction and operation expenditures for geothermal electricity development, the commercial production of 10 megawatts anticipated under this alternative is estimated to support approximately 30 jobs and $1.5 million in wages across the seven-county study area on annual average over the next 15 years.

The leasing and development in fluid minerals under this regulation option would generate Federal revenue from lease sales, annual lease rents, and royalties on commercial production. In accordance with the Energy Policy Act of 2005, a portion of geothermal revenues are distributed back to state and local governments. Under this statue the Federal government retains 25 percent of the revenues from royalties and leasing; 50 percent total revenue is distributed back to states to plan, construct, and maintain public facilities and provide public services; and the remaining 25 percent is returned to counties where Federal leasing and royalty revenue was generated. Since leasing and production of geothermal resources would be lowest if this regulation option was chosen it is anticipated to produce the least amount of Federal, state, and county revenue from activities associated with fluid minerals within the amendment area.

The cumulative effects associated with this regulation option would be minimal. Since it inhibits future fluid mineral exploration and development in Bi-state DPS habitat, reduced access and ability to develop high potential geothermal resources in these areas may limit growth in the region's budding geothermal industry. Since large amounts of high potential geothermal resources exist outside Bi-state DPS habitat, restrictions on exploration and development in the amendment area are anticipated to have a relatively small effect on regional geothermal activities over the next 10 to 15 years.

Recreation: Recreation opportunities could be affected the most under implementation of alternative C. Restrictions on seasons, locations, and access could change the way people recreate in the amendment area. A small number of acres within the amendment area would be closed for cross-country OHV recreation, and users that enjoy this type of recreation would be displaced to other locations or would be limited to designated roads and trails. Although the quality and quantity of motorized recreational experiences in the amendment area may adversely effected by management actions under alternative C,

[11] These jobs include and full-time, part-time, and temporary jobs directly, indirectly, and induced by mineral development within the amendment area.

opportunities for non-motorized recreation, such as hiking, horseback riding, and hunting, in a more natural or primitive setting may be expanded and enhanced. It is unclear to what extent additional non-motorized recreational opportunities could offset losses in motorized use. While management actions under alternative C may cause displacement, overall visitation is not anticipated to change much because the amendment area contains a number of substitute sites that would suit visitors' needs.

All OHV events would continue to be analyzed under site-specific environmental analysis. Overall changes in the number of BLM special recreation permits and Forest Service recreation permits from standards and guidelines proposed under alternative C are anticipated to be relatively small. Permit modifications under alternative C would include more extensive stipulations on the location and timing of OHV events than under alternative B. While there would be numerous alternative locations for OHV events and outfitter-guide activities outside of Bi-state DPS habitat, permit holders who still wanted to hold events or guide clients would need to identify alternative locations and routes to minimize adverse effects on Bi-state DPS. Permit holders and applicants could incur additional costs and longer timelines in order to obtain permission for their events and some past OHV event participants might be deterred by changes in event locations and timing. Although changes in recreational activity within the amendment area may result from the implementation of alternative C, is not possible to quantify these economic effects.

Cumulative Effects. The social and economic environment in which we live is constantly changing in response to local, regional, national, and global factors. While census data may provide an indication of recent social and economic trends, it does not attempt to forecast future social or economic conditions. Restrictive standards and guidelines proposed under alternative C would have direct and indirect effects on the social and economic would eliminate livestock grazing and significantly reduce mineral exploration and development within the amendment area.

Alternative C is anticipated to have a direct effect on forage use within the amendment area. The prohibition of livestock grazing on the 87 allotments which contain Bi-state DPS habitat would be detrimental to the social and economic vitality of smaller agricultural communities within the seven-county study area. The degree to which closing allotments in Bi-state DPS habitat to livestock grazing will have cumulative effects on local communities and the regional agricultural sector depends largely on permittees' ability to adapt to standards and guidelines which may restrict their ability to utilize grazing rights authorized under Federal grazing permits. While ranchers may choose to: (a) graze on their own properties if they have sufficient grazing land; (b) find and secure private pasture and rangeland leases during summer months; (c) purchase hay and grains to replace forage in winter, early spring, or late fall; additional costs to secure additional range or supplemental feed may force some local ranchers to drastically reduce herd sizes or stop livestock production all together.

In addition to potential adverse cumulative economic impacts, eliminating access to Federal forage under alternative C may have adverse social impacts which threaten the ranching way of life. The financial burden of trying to offset Federal forage losses with more expensive private or supplement feed may force some local ranchers to transition land and other ranch resources from livestock production to other agricultural uses or abandon agricultural practices all together. Shifts away from these longstanding agricultural land uses may threaten traditional values of local ranchers and inhibit future generation's ability to learn and connect with the heritage of their ancestors.

New restrictive standards and guidelines, and stipulations associated with mineral development in the amendment area, also have the potential to generate adverse cumulative effects. Although many of the operating mines, existing gravel pits, and exploration projects would continue operating, discretionary and nondiscretionary actions are anticipated to significantly inhibit locatable mineral exploration, mining, and future geothermal development within the amendment area. While some extraction activities can

move outside Bi-state DPS habitat and have little effect on overall economic activity within the mining sector, the only lithium mine operating in the U.S. is largely located in the amendment area and would only have limited ability to shift production out of habitat areas. Validity exams and restrictions on mine expansion are anticipated to negatively affect the mine's ability to extract lithium carbonate over the long-run. Since overall lithium production in the U.S. would decline as mining activities in the amendment area became more restrictive, these restrictions would have a net-effect on the local mining sector and adversely affect national and global lithium supplies.

Potential cumulative effects associated with changes in recreation under this alternative are anticipated to be minimal. The degree to which new standards and guidelines for recreation within the amendment area will create cumulative effects depends on recreationists' ability to adapt timing and location restrictions. Although management actions proposed under this alternative may affect the mix of recreational experiences supported by the amendment area, the region is believed to contain sufficient substitute recreation sites to continue to provide a wide range of opportunities for motorized and non-motorized recreation. Management actions proposed under other Federal public lands planning efforts in the region may adversely affect substitute recreation sites' ability to support opportunities for activities inhibited within the amendment area. As a result, regional opportunities for some recreational motorized uses may be reduced in the long term. Potential long-term net losses in overall regional recreation could have an adverse effect on employment and income in the region's service sector.

Other Relevant Mandatory Disclosures

Environmental Justice (Executive Order [EO] 12898). During the course of this analysis, none of the alternatives considered resulted in any identifiable effects or issues specific to any minority or low-income population or community. The Agency considered all public input from persons or groups regardless of age, race, income status, or other social/economic characteristics. Examination of community composition, as required under EO 12898, found no minority or low-income communities to be disproportionately affected under any of the alternatives. This was not raised as an issue during scoping.

Civil Rights. U.S. Department of Agriculture civil rights policy requires each agency to analyze the civil rights impact(s) of policies, actions, or decisions that will affect federally conducted and federally assisted programs and activities. A civil rights impact analysis facilitates the identification of the effects of eligibility criteria, methods of administration, or other agency-imposed requirements that may adversely and disproportionately impact employees or program beneficiaries based on their membership in a protected group. Protected groups include multiples of similarly situated persons who may be distinguished by their common race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetics, political beliefs, or receipt of income from any public assistance program. During the course of this analysis, none of the alternatives considered resulted in any identifiable effects or issues specific to any minority or low-income population or community. The agency considered all public input from persons or groups regardless of age, race, income status, or other social/economic characteristics. Examination of community composition, as required under EO 12898, found no minority or low-income communities to be disproportionately affected under any of the alternatives.

Effects to Wildlife

The following section on effects to wildlife discloses specifically the potential effects to the Bi-state DPS from this proposed plan amendment and organizes these effects by threat identified by the USFWS (USDI Fish and Wildlife Service 2013a). Analysis and determinations for other species including sagebrush-associated sensitive species, pinyon-juniper-associated sensitive species, Regional Forester's sensitive

species, Nevada BLM sensitive species, and management indicator species is available in the biological assessment/biological evaluation in the project record. This document will be provided as requested.

Affected Environment

The analysis area consists of national forest system and BLM lands that have been identified as Bi-state DPS habitat. The management direction proposed in the action alternative would apply to designated Bi-state DPS habitat. The analysis area consists of 650,746 total acres of identified Bi-state DPS habitat on Forest Service and BLM lands. Of these, about 426,809 acres (66 percent) occur on Forest Service lands and 223,935 acres (44 percent) are on BLM lands. Both the Bridgeport and Carson ranger districts on the Humboldt-Toiyabe National Forest contain Bi-state DPS habitat, as do both the BLM Carson City District and Tonopah Field Office. Federal, state, and private ownerships occur within and outside the national forest and BLM district boundaries, and include Bi-state DPS habitat.

Overview. The Bi-state DPS comprises a genetically unique meta-population of greater sage-grouse that defines the far southwestern limit of the species' range. This genetic distinction may be the result of natural geologic events and subsequent long-term geographic isolation based on prevailing physiographic and habitat conditions.

The range of the Bi-state DPS occurs over an area approximately 170-miles long and up to 60-miles wide. It includes portions of five counties in western Nevada: Douglas, Lyon, Carson City, Mineral, and Esmeralda; and three counties in eastern California: Alpine, Mono, and Inyo.

The Bi-state DPS is characterized by available genetic, population, and habitat data as a genetically diverse, locally adapted meta-population consisting of several relatively small, localized breeding populations distributed among suitable sagebrush habitats throughout the Bi-state area.

Two core sage grouse populations, Bodie Hills and Long Valley, occur in the Mono County portion of the Bi-state area. These core areas annually comprise approximately 94 percent of all strutting males counted during annual lek surveys in California. Public lands administered by the BLM and Forest Service and private lands in the Bi-state DPS area provide important habitat for populations of greater sage-grouse (Bi-state Technical Advisory Committee 2012).

Population and Telemetry Data Summaries. Greater sage-grouse have comparatively slower potential population growth rates than other species of grouse and display a high degree of site fidelity to seasonal habitats. While these characteristics would not limit greater sage-grouse populations across large geographic scales under historical conditions of extensive habitat, they may contribute to local declines where humans alter habitats, or when natural mortality rates are high in small, isolated populations such as in the case of the Bi-state DPS. The best estimates for the Bi-state DPS of the greater sage-grouse place the population between 1,833 and 7,416 individuals for the time period 2002 to 2012 (USDI Fish and Wildlife Service 2013b). Based on radio-telemetry and genetic data, the local populations of greater sage-grouse in the Bi-state area appear to be isolated to varying degrees from one another. In addition to the potential negative effects to small populations due to genetic considerations, small populations such the Bi-state DPS are at greater risk than larger populations from stochastic events, such as environmental catastrophes or random fluctuations in birth and death rates, as well disease epidemics, predation, fluctuations in habitat available, and various other factors (USDI Fish and Wildlife Service 2010).

Population information contained in the Bi-state action plan is described by population management unit. The Bi-state sage grouse amendment project area contains all or portions of five of six population management units (PMUs) described in the Bi-state action plan (Pine Nut, Desert Creek/Fales, Bodie Hills, Mount Grant, and White Mountains population management units). In addition, more specific

information concerning Bi-state DPS seasonal locations, movements, home range size, and mortality factors is described by Casazza et al. (2007).

Risk Factors. Risk factors and threats to the Bi-state DPS were assessed and ranked by degree for individual PMUs by the Bi-State Technical Advisory Committee (Bi-State Technical Advisory Committee 2012). The U.S. Fish and Wildlife Service also assessed risk factors and threats by degree in the proposed listing announcement (USDI Fish and Wildlife Service 2013a) and the Species Assessment Report (USDI Fish and Wildlife Service 2013b). Summaries of each assessment are provided below.

The Bi-state action plan identified, ranked, and summarized sage grouse risk factors for each of the Bi-state PMUs. Table 3-9 displays the risk factors, ranked low to high, for each of the population management units. Among the risk factors, only pinyon-juniper encroachment is ranked "high" for all PMUs, while wildfire is ranked "high" for four of five PMUs and ranked "moderate" in the White Mountains. Risk due to invasive species (cheatgrass) is ranked "high" in the Pine Nut Population Management Unit, and "low" to "moderate" in the remaining PMUs within the assessment area. Other high ranking risk factors within the Pine Nut Population Management Unit include urbanization, disturbance due to OHV use, linear infrastructure, and wind energy development. Linear infrastructure was also ranked "high" in the Mount Grant Population Management Unit, as were mineral energy exploration and development and geothermal leasing and development.

Table 3-9. Bi-state DPS population management unit risk factors

	PMU/Risk Level				
Risk Factor	**Pine Nut**	**Desert Creek/ Fales**	**Bodie Hills**	**Mount Grant**	**White Mountains**
Wildfire	High	High	High	High	Moderate
Pinyon-Juniper Encroachment	High	High	High	High	High
Invasive Species (Cheatgrass)	High	Low	Low	Moderate	Low
Urbanization	High	NI[1]	Moderate	NI	Moderate
Human Disturbance	High (OHV)	Moderate	NI	Low	Low
Infrastructure (Linear)	High	High	Moderate	High	Low
Predation	Moderate	Moderate	Low	Low	Low
Disease (West Nile Virus)	Not yet determined	Moderate	Low	Low	Low
Wind Energy Development	High	NI	NI	NI	NI
Wind Energy Testing	Low	NI	NI	NI	NI
Mineral Exploration and Development	NI	NI	Low	High	NI
Geothermal Leasing and Development	NI	NI	NI	High	NI
Sagebrush Habitat Conditions	NI	Moderate	NI	NI	NI
Grazing–Wild Horses	Moderate	NI	Low	Moderate	Moderate
Grazing–Permitted Livestock	Low	Low	Low	Low	Low
Recreation	NI	NI	NI	Low	NI

[1] NI = Not identified as a ranked risk factor.

Source: Bi-state Technical Advisory Committee, Nevada and California (2012).

Habitat Connectivity. Loss of habitat connectivity within and between the Pine Nut, Desert Creek-Fales, Bodie Hills, and Mount Grant PMUs is identified as a concern for long-term conservation. The major factor contributing to loss of connectivity for all population management units is pinyon-juniper encroachment, with recent wildfires and urbanization also identified as contributing factors for the Pine Nut Population Management Unit (Bi-state Technical Advisory Committee 2012).

Risk Factors/Threats Identified by the U.S. Fish and Wildlife Service (USFWS). In the proposed listing announcement, the USFWS described threats associated with the Bi-state DPS (USDI Fish and Wildlife Service 2013a). They determined that threats posing the most significant impacts to the Bi-state DPS currently and in the future are nonnative and native, invasive species; wildfires and altered fire regime; infrastructure; grazing; and small population size and population structure. Other threats impacting the Bi-state DPS to a lesser degree are urbanization and habitat conversion; mining; renewable energy development and associated infrastructure; disease; predation; climate change, including drought; and recreation. Table 3-10 displays threats to Bi-state DPS identified by USFWS as well as USFWS degree of threat, and threat applicability to this project.

A summary of the current condition of each of these threats as described in biological assessment/biological evaluation for this plan amendment is located in the project record and available upon request. Literature citations omitted here can be found in the proposed listing document (USDI Fish and Wildlife Service 2013a), herein incorporated by reference. Additional information is also available in the *U.S. Fish and Wildlife Service, Species Status Assessment, Bi-State Distinct Population Segment of Greater Sage-grouse* (Species Assessment Report, USDI Fish and Wildlife Service 2013b).

Table 3-10. Summary of threats to Bi-state DPS identified by USFWS (USDI Fish and Wildlife Service 2013a) and applicability to this analysis

Threat	Degree of Threat to Bi-state DPS Identified by USFWS in Proposed Listing Rule	Risk Factor/Threat Applicability to/Affected by FS and BLM land Management	Addressed in This Analysis
Nonnative and Native Invasive Plants	Significant Impacts	Applicable	Yes
Wildfires and Altered Fire Regimes	Significant Impacts	Applicable	Yes
Infrastructure	Adversely Impacting	Applicable	Yes
Livestock Grazing	Significant Indirect and Cumulative Impacts	Applicable	Yes
Small Population Size and Population Structure	Significant Impacts	Applicable	Yes
Urbanization	Localized Impacts	Applicable	Yes
Mining	Concern for Existing and Future Impacts	Applicable	Yes
Renewable Energy	Concern for Existing and Future Impacts	Applicable	Yes
Disease	Concern for Future Impacts	Applicable	Yes
Predation	Concern for Existing and Future Impacts	Applicable	Yes
Climate	Concern for Synergistic Impacts	Applicable	Yes
Recreation	Concern for Future Impacts	Applicable	Yes
Overutilization	Negligible Impacts	Not Applicable	No
Scientific and Educational Uses	Negligible Impacts	Not Applicable	No
Pesticides and Herbicides	Negligible Impacts	Applicable	No
Contaminants	Negligible Impacts	Applicable	No
Existing Regulatory Mechanisms	Inadequate to Address Existing and Future Threats	Applicable	Yes (As Purpose of this Project)
Synergistic Effects	Summary of Threats Listed Above	Applicable	Yes (In Summary of Threats Listed Above)

Environmental Consequences to Bi-state DPS by Threat as Defined by USFWS

Risk factors and threats identified by both the Bi-State Technical Advisory Committee and USFWS serve as a basis for analyzing potential effects of alternatives on Bi-state DPS. Risk factors rated "moderate" or "high" by the Bi-State Technical Advisory Committee as well as those threats identified by USFWS as significantly or adversely affecting Bi-state DPS range-wide or locally, are addressed below. Risk factors and threats for which management direction on applicable Federal lands would have no influence or associated effect (i.e., overutilization, scientific and educational uses) are not addressed. Synergistic impacts (as described by USFWS) are addressed as a result of the summary comparison of alternatives in meeting the conservation needs of Bi-state DPS.

The tables of goals and objectives, and standards and guidelines by alternative are provided in chapter 2 (table 2-3 and table 2-4) and are referenced here to disclose the differences in effects on risk factors and

threats. Analysis of the action alternatives are often combined in the same sections below to better compare and contrast effects.

Nonnative and Native Invasive Plants

Alternative A (No-Action)

Under current management, the Forest Service and BLM utilize integrated weed management techniques to reduce the likelihood of invasive weed spread and the extent of current infestations. This issue is intimately tied to the threat from fire, and fuels management actions which can also reduce weeds and create fire breaks. Under alternative A, both the Forest and BLM would continue to implement noxious weed and invasive species control using integrated weed management actions per funding and plans in cooperation with state and Federal agencies, affected counties, and adjoining private lands. Though there are no specific objectives in Forest Plans to focus these efforts on cheatgrass or sagebrush communities, these activities improve Bi-state DPS habitat along with other vegetation types, but do not specifically prioritize management in sage grouse habitats.

The no-action alternative does not take any specific actions to prevent pinyon-juniper encroachment, but does contain goals and objectives for maintaining, improving, or restoring sagebrush plant communities often for big game winter range and/or livestock grazing. Under alternative A, the Carson City District RMP (resource management plan) prescribes removal of 600 acres of pinyon-juniper overstory on selected sites in the analysis area via fuelwood harvest. No prescriptions or direction was found in any LRMP or RMP related to reducing pinyon-juniper encroachment to benefit sagebrush restoration. As signatories to the Bi-State action plan (Bi-State Technical Advisory Committee 2012) the Humboldt-Toiyabe National Forest and BLM in Nevada have accomplished pinyon-juniper reduction projects as well as committed to future reductions in pinyon-juniper encroachment to benefit sage-grouse habitats under the no-action alternative.

Alternatives B and C

Under the action alternatives, the Forest Service and BLM would continue to implement noxious weed and invasive species control using integrated weed management actions per existing plans to control, suppress, and eradicate noxious and invasive species, similar to direction provided under alternative A. In addition, the action alternatives apply standards and guidelines designed to reduce occurrence and spread of invasives resulting from fuel treatments and wildfire suppression (table 2-4). While alternative A provides for a “rest” from grazing of areas disturbed by wildfire for 2 years, both action alternatives provide additional direction that would extend the rest period if desired vegetation conditions are not yet met. Both action alternatives address reduction of pinyon-juniper encroachment into sagebrush habitats by prescribing removal of pinyon-juniper phases 1 and 2 (i.e., pinyon-juniper stand with less than 50 percent canopy closure) near meadows and in proximity to leks.

Compared to alternative C, alternative B would incur a slight increase in risk in occurrence and expansion of nonnative invasives by allowing prescribed fire treatments to occur in areas where cheatgrass is a minor component. While this would be allowed only outside sagebrush areas with less than 12 inches of annual precipitation or 12 inches of soil, there are likely to be areas where local conditions (i.e., aspect, soil type) are susceptible to cheatgrass spread after disturbance. Outside of sagebrush areas with less than 12 inches of annual precipitation or 12 inches of soil, alternative C incorporates direction to utilize mechanical treatments in areas with relatively low resistance to annual invasive grasses, thereby decreasing overall risk.

Wildfires and Altered Fire Regimes

Alternative A (No-Action)

Both prescribed fire and non-fire fuels treatments are allowed in current LRMP and RMPs, and fire suppression is prioritized to protect human life and specific resource values at risk. Some emphasis is placed on protection of sage grouse habitats. For example, under the Tonopah RMP, direction states that wildfires that threaten resources such as sage grouse strutting grounds will be kept to minimum acres. These policies do not avoid the use of prescribed fire in sagebrush habitat nor prioritize protection of sagebrush; thus, loss of habitat to wildfire and prescribed fire would continue. The no-action alternative would have the fewest restrictions for fuels management actions and has a high potential for vegetation disturbance leading to habitat loss and fragmentation. Because this alternative does not prioritize fire operations beyond what has already been determined in the fire management plans for the area, potential impacts may include: removing or degrading habitat, disrupting reproduction, causing changes in species movement patterns due to areas devoid of vegetation, and ultimately impacting local populations.

Alternatives B and C

Under the action alternatives, fuels treatments would be designed and implemented to emphasize protection of existing sagebrush ecosystems. Fuels management programs would consider sage grouse habitat needs by reducing the acres of sagebrush potentially burned in wildfires, or potentially lost or degraded during fuels treatment programs. Therefore, these policies would provide additional protection to Bi-state DPS habitat in comparison to alternative A.

While both action alternatives reduce risk of habitat loss to wildfire and prescribed fire, two differences are notable. Whereas alternative B prescribes that fuels treatments should emphasize protecting existing sagebrush ecosystems, alternative C provides better focus of treatment priorities by prescribing application of preventative measures (i.e., fuel breaks and green strips) to protect more suitable habitat areas that contain greater than 25 percent landscape sagebrush cover (table 2-4). In the event of wildfire occurrence in sage grouse habitat, alternative B decreases risk of negative impacts during suppression by prescribing immediate identification of important sage grouse habitats. The remaining elements provided under both action alternatives are similar in addressing threats associated with wildfires and altered fire regimes.

Infrastructure

Alternative A (No-Action)

Under current management, there is little management direction consisting of standards and guidelines pertaining to restriction or removal of infrastructure that poses risk to sage grouse. However, there are several mechanisms that allow managers some flexibility in addressing risk factors and threats. For example, the authorized officer has the ability to change stipulations of existing permits. Permits involving powerlines are issued on a case-by-case basis after environmental analysis during which burial of powerlines may be required on a site-specific basis. Concerning rights-of-way, most permits have language that authorizes the use, maintenance, and removal of improvements. Where the right-of-way itself is a historic feature, or the reclamation work may have additional unwanted adverse effects that outweigh the benefits, reclamation may not be required.

Alternative B and C

Under the action alternatives, a number of measures are incorporated to limit and/or remove infrastructure development to benefit sage grouse. These primarily address roads, structures, powerlines, and fences (table 2-4). Both alternatives prescribe removal of fences and other livestock-related infrastructure negatively impacting sage grouse. Both action alternatives reduce risk associated with right-of-way

infrastructure by prescribing that, when informed a right-of-way is no longer in use, the right-of-way would be relinquished and the site reclaimed by removing powerlines, reclaiming roads, and removing other infrastructure, where such reclamation work does not have unwanted adverse effects. Both alternatives would require concentrating fluid mineral disturbance/facilities to reduce spatial impact to habitat, locating fluid mineral camps for workers outside of habitat, and burying powerlines where feasible to reduce overhead predator perches.

Although the above similarities exist, there are a number of elements provided under alternative C that more effectively minimizes or removes risk factors and threats associated with infrastructure when compared to alternative B. For example, alternative C provides no allowances for utility-scale commercial wind or solar energy facilities energy facilities in Bi-state DPS habitats while alternative B provides allowance for industrial wind and solar facilities associated with existing industrial infrastructure (e.g., a mine site) to provide on-site power generation. In addition, alternative C would allow consent to fluid mineral leasing within habitat only under no-surface-occupancy stipulations. Also, alternative C would prohibit authorizing new mineral material compressor stations associated with fluid mineral uses inside habitats whereas new compressor stations with noise reduction design elements are allowed under alternative B. Alternative C would not authorize new high power transmission line corridors, transmission line rights-of-way, transmission line construction, or transmission line facility construction in habitat. Alternative B would not authorize construction of new high power transmission towers within habitat unless technically infeasible elsewhere.

Several management elements associated with risk and threats are addressed by alternatives B by allowing uses and activities to occur with management restrictions, such as limiting total disturbance, prescribing no net unmitigated habitat loss, distance buffers, and structural modifications, in place designed to reduce, minimize, or remove negative impacts. Alternative B prohibits new recreation facilities in habitat unless they will have a neutral or beneficial effect to habitat up to 3 percent total anthropogenic disturbance limit. Livestock watering and handling facilities (corrals, chutes, dipping vats, etc.) or sheep bedding ground would not be located within 2 miles of an active lek and 0.6 miles from riparian areas. Alternative B would not authorize new fences in habitat unless necessary for safety or environmental protection reasons (applies to fluid minerals only). If fences are necessary, a sage grouse-safe design (e.g., marking) would be required. To the extent possible, fences would not be installed in habitat unless to protect habitat or for human health and safety. If fences must be installed, they shall be at least 2 miles from active leks, and if possible, let down when not needed for the purpose of their installation. New communication sites in habitat could be authorized as long as development incorporates appropriate project design features and mitigation measures in design and construction (e.g., noise, tall structure, seasonal restrictions, etc.) and development results in no net unmitigated loss of habitat. Also, alternative B would not authorize construction of new high power transmission towers within habitat unless technically infeasible elsewhere.

In comparison, alternative C utilizes prohibitions and to some extent management restrictions to address similar elements. For example, new recreation facilities in sage grouse habitats would be prohibited, and livestock grazing and associated infrastructure would be removed (see “Livestock Grazing and Range Management” below); therefore, no infrastructure related to livestock would be constructed. To the extent possible, fences would not be installed in habitat unless to protect habitat or for human health and safety. If fences must be installed, they shall be at least 2 miles from active leks, and if possible, let down when not needed for the purpose of their installation; and there would be no authorization for new high power transmission line corridors, transmission line rights-of-way, transmission line construction, or transmission line facility construction in habitat.

Overall, both alternatives B and C provide management direction that addresses risk factors and threats associated with infrastructure at a level that increases conservation of sage-grouse habitat in comparison to alternative A. The action alternatives are most effective in reducing risk where new infrastructure is prohibited and existing infrastructure is prescribed for removal. Alternative B retains a higher level of risk associated for several elements where infrastructure is allowed with no prescribed management restrictions, but substantially reduces risks and threats to sage grouse and sage grouse habitats when management restrictions such as distance buffers, structural modifications, no net loss of habitat and seasonal restrictions are applied. Alternative C provides the highest level of risk reduction associated with infrastructure.

Nonnative and Native Invasive Plants

Alternative A (No-Action)

Under current management, the Forest Service and BLM utilize integrated weed management techniques to reduce the likelihood of invasive weed spread and the extent of current infestations. This issue is intimately tied to the threat from fire, and fuels management actions which can also reduce weeds and create fire breaks. Under alternative A, both the Forest and BLM would continue to implement noxious weed and invasive species control using integrated weed management actions per funding and plans in cooperation with state and Federal agencies, affected counties, and adjoining private lands. Though there are no specific objectives in Forest Plans to focus these efforts on cheatgrass or sagebrush communities, these activities improve Bi-state DPS habitat along with other vegetation types, but do not specifically prioritize management in sage grouse habitats.

The no-action alternative does not take any specific actions to prevent pinyon-juniper encroachment, but does contain goals and objectives for maintaining improving, or restoring sagebrush plant communities often for big game winter range and/or livestock grazing. Under alternative A, the Carson City District RMP prescribes removal of 600 acres of pinyon-juniper overstory on selected sites in the analysis area via fuelwood harvest. No prescriptions or direction was found in any LRMP or RMP related to reducing pinyon-juniper encroachment to benefit sagebrush restoration. As signatories to the Bi-State action plan (Bi-State Technical Advisory Committee 2012) the Humboldt-Toiyabe National Forest and BLM in Nevada have accomplished pinyon-juniper reduction projects as well as committed to future reductions in pinyon-juniper encroachment to benefit sage grouse habitats under the no-action alternative.

Alternatives B and C

Under the action alternatives, the Forest Service and BLM would continue to implement noxious weed and invasive species control using integrated weed management actions per existing plans to control, suppress, and eradicate noxious and invasive species, similar to direction provided under alternative A. In addition, the action alternatives apply standards and guidelines designed to reduce occurrence and spread of invasives resulting from fuel treatments and wildfire suppression (table 2-4). While alternative A provides for a “rest” from grazing of areas disturbed by wildfire for 2 years, both action alternatives provide additional direction that would extend the rest period if desired vegetation conditions are not yet met. Both action alternatives address reduction of pinyon-juniper encroachment into sagebrush habitats by prescribing removal of pinyon-juniper phases 1 and 2 (i.e., pinyon-juniper stand with less than 50 percent canopy closure) near meadows and in proximity to leks.

Compared to alternative C, alternative B would incur a slight increase in risk in occurrence and expansion of nonnative invasives by allowing prescribed fire treatments to occur in areas where cheatgrass is a minor component. While this would be allowed only outside sagebrush areas with less than 12 inches of annual precipitation or 12 inches of soil, there are likely to be areas where local conditions (i.e., aspect, soil type) are susceptible to cheatgrass spread after disturbance. Outside of sagebrush areas with less than

12 inches of annual precipitation or 12 inches of soil, alternative C incorporates direction to utilize mechanical treatments in areas with relatively low resistance to annual invasive grasses, thereby decreasing overall risk.

Wildfires and Altered Fire Regimes

Alternative A (No-Action)

Both prescribed fire and non-fire fuels treatments are allowed in current LRMP and RMPs, and fire suppression is prioritized to protect human life and specific resource values at risk. Some emphasis is placed on protection of sage grouse habitats. For example, under the Tonopah RMP, direction states that wildfires that threaten resources such as sage grouse strutting grounds will be kept to minimum acres. These policies do not avoid the use of prescribed fire in sagebrush habitat nor prioritize protection of sagebrush; thus, loss of habitat to wildfire and prescribed fire would continue. The no-action alternative would have the fewest restrictions for fuels management actions and has a high potential for vegetation disturbance leading to habitat loss and fragmentation. As this alternative does not prioritize fire operations beyond what has already been determined in the fire management plans for the area, potential impacts may include: removing or degrading habitat, disrupting reproduction, causing changes in species movement patterns due to areas devoid of vegetation, and ultimately impacting local populations.

Alternatives B and C

Under the action alternatives, fuels treatments would be designed and implemented to emphasize protection of existing sagebrush ecosystems. Fuels management programs would consider sage grouse habitat needs by reducing the acres of sagebrush potentially burned in wildfires, or potentially lost or degraded during fuels treatment programs. Therefore, these policies would provide additional protection to Bi-state DPS habitat in comparison to alternative A.

While both action alternatives reduce risk of habitat loss to wildfire and prescribed fire, two differences are notable. Whereas alternative B prescribes that fuels treatments should emphasize protecting existing sagebrush ecosystems, alternative C provides better focus of treatment priorities by prescribing application of preventative measures (i.e., fuel breaks and green strips) to protect more suitable habitat areas that contain greater than 25 percent landscape sagebrush cover (table 2-4). In the event of wildfire occurrence in sage-grouse habitat, alternative B decreases risk of negative impacts during suppression by prescribing immediate identification of important sage grouse habitats. The remaining elements provided under both action alternatives are similar in addressing threats associated with wildfires and altered fire regimes.

Infrastructure

Alternative A (No-Action)

Under current management, there is little management direction consisting of standards and guidelines pertaining to restriction or removal of infrastructure that poses risk to sage grouse. However, several mechanisms do exist that allow managers some flexibility in addressing risk factors and threats. For example, the authorized officer has the ability to change stipulations of existing permits. Permits involving powerlines are issued on a case-by-case basis after environmental analysis during which burial of powerlines may be required on a site-specific basis. Concerning rights-of-way, most permits have language that authorizes the use, maintenance, and removal of improvements. Where the rights-of-way itself is a historic feature, or the reclamation work may have additional unwanted adverse effects that outweigh the benefits, reclamation may not be required.

Alternative B and C

Under the action alternatives, a number of measures are incorporated to limit and/or remove infrastructure development to benefit sage grouse. These primarily address roads, structures, powerlines, and fences (table 2-4). Both alternatives prescribe removal of fences and other livestock-related infrastructure negatively impacting sage grouse. Both action alternatives reduce risk associated with right-of-way infrastructure by prescribe that, when informed that a right-of-way is no longer in use, the right-of-way would be relinquished and the site reclaimed by removing powerlines, reclaiming roads, and removing other infrastructure, where such reclamation work does not have unwanted adverse effects. Both alternatives would require concentrating fluid mineral disturbance/facilities to reduce spatial impact to habitat, locating fluid mineral camps for workers outside of habitat, and burying powerlines where feasible to reduce overhead predator perches.

Although the above similarities exist, there are a number of elements provided under alternative C that more effectively minimizes or removes risk factors and threats associated with infrastructure when compared to alternative B. For example, alternative C provides no allowances for utility-scale commercial wind or solar energy facilities energy facilities in Bi-state DPS habitats while alternative B provides allowance for industrial wind and solar facilities associated with existing industrial infrastructure (e.g., a mine site) to provide on-site power generation. In addition, alternative C would allow consent to fluid mineral leasing within habitat only under no-surface-occupancy stipulations. Also, alternative C would prohibit authorizing new mineral material compressor stations associated with fluid mineral uses inside habitats whereas new compressor stations with noise reduction design elements are allowed under alternative B. Alternative C would not authorize new high power transmission line corridors, transmission line right of ways, transmission line construction, or transmission line facility construction in habitat. Alternative B would not authorize construction of new high power transmission towers within habitat unless technically infeasible elsewhere.

Several management elements associated with risk and threats are addressed by alternative B by allowing uses and activities to occur with management restrictions, such as limiting total disturbance, prescribing no net unmitigated habitat loss, distance buffers, and structural modifications, in place designed to reduce, minimize, or remove negative impacts. Alternative B prohibits new recreation facilities in habitat unless they will have a neutral or beneficial effect to habitat up to 3 percent total anthropogenic disturbance limit. Livestock watering and handling facilities (corrals, chutes, dipping vats, etc.) or sheep bedding grounds would not be located within 2 miles of an active lek and 0.6 miles from riparian areas. Alternative B would not authorize new fences in habitat unless necessary for safety or environmental protection reasons (applies to fluid minerals only). If fences are necessary, a sage grouse-safe design (e.g., marking) would be required. To the extent possible, fences would not be installed in habitat unless to protect habitat or for human health and safety. If fences must be installed, they shall be at least 2 miles from active leks, and if possible, let down when not needed for the purpose of their installation. New communication sites in habitat could be authorized as long as development incorporates appropriate project design features and mitigation measures in design and construction (e.g., noise, tall structure, seasonal restrictions, etc.) and development results in no net unmitigated loss of habitat. Also, alternative B would not authorize construction of new high-power transmission towers within habitat unless technically infeasible elsewhere.

In comparison, alternative C utilizes prohibitions and to some extent management restrictions to address similar elements. For example, new recreation facilities in sage grouse habitats would be prohibited, and livestock grazing and associated infrastructure would be removed (see “Livestock Grazing and Range Management” below); therefore, no infrastructure related to livestock would be constructed. To the extent possible, fences would not be installed in habitat unless to protect habitat or for human health and safety. If fences must be installed, they shall be at least 2 miles from active leks, and if possible, let down when

not needed for the purpose of their installation; and there would be no authorization for new high-power transmission line corridors, transmission line rights-of-way, transmission line construction, or transmission line facility construction in habitat.

Overall, both alternatives B and C provide management direction that addresses risk factors and threats associated with infrastructure at a level that increases conservation of sage-grouse habitat in comparison to alternative A. The action alternatives are most effective in reducing risk where new infrastructure is prohibited and existing infrastructure is prescribed for removal. Alternative B retains a higher level of risk associated for several elements where infrastructure is allowed with no prescribed management restrictions, but substantially reduces risks and threats to sage grouse and sage grouse habitats when management restrictions such as distance buffers, structural modifications, no net loss of habitat and seasonal restrictions are applied. Alternative C provides the highest level of risk reduction associated with infrastructure.

Small Population Size and Population Structure (Isolation/Habitat Fragmentation)

The following information pertaining to small population size and population structure is summarized below from the USFWS, Species Status Assessment, Bi-State Distinct Population Segment of Greater Sage-grouse (Species Assessment Report, USDI Fish and Wildlife Service 2013b). In order to assess each alternative's contribution to reducing risks associated with small population size and population structure, this analysis will focus on effects to habitat quantity, quality, and connectivity.

Alternative A (No-Action)

Existing direction in the Toiyabe National Forest Land and Resource Management Plan (Toiyabe Forest Plan) pertaining to the amount of available habitat as well as managing for habitat suitability is displayed in table 2-3 and table 2-4. Elements include identification of important habitats, maintaining adequate sagebrush canopy cover and suitable meadow condition, management of seasonal habitats, maintenance of sagebrush and restoration of grass-forb components, as well as managing to maintain or increase populations and to support species viability and distribution.

For the BLM, the Carson City Field Office Consolidated Resource Management Plan (RMP) tiers to current habitat modification guidelines prepared by the Western Sage Grouse Committee of the Western Association of Fish and Wildlife Agencies. The Tonopah RMP prescribes application of management restrictions in key wildlife habitats, states that wildlife habitats will be addressed at the project level with appropriate application of stipulations to meet wildlife objectives. The RMP also addresses cover, forage, and water availability, and prescribes implementation of habitat improvement projects where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition and states that such projects will be identified through habitat management plans or other activity plans.

The 2013 issuance of Instruction Memorandum No. NV-2013-009 (Bi-State Distinct Population Segment of Greater Sage-grouse Interim Management Policies and Procedures) provides interim conservation policies and procedures to BLM field officials to be applied to ongoing and proposed authorizations and activities that affect the Bi-state DPS and its habitat. This direction ensures that interim conservation policies and procedures are implemented when the Carson City District or Tonopah Field Office (Battle Mountain District) authorizes or carries out activities on public land during the current revision of the District's Resource Management Plans (RMPs). Instruction Memorandum NV-2013-009 provides more specific management direction for (1) protection of unfragmented habitats; (2) minimization of habitat loss and fragmentation; and (3) management of habitats to maintain, enhance, or restore conditions that meet Bi-state DPS life history needs on BLM lands.

Management direction found in the current Humboldt-Toiyabe National Forest Plan as well as Carson City District and Tonopah Field Office RMP. Resource management plans address important elements for managing healthy sage grouse habitats; however, all but a few lack specific management direction that would ensure consistent application of measures recommended for supporting a sage grouse population that is low in numbers, isolated, and poorly connected within its distribution (as described above), with decreased habitat availability, is easily disturbed, and for which a multitude of stressors exist locally and rangewide. For BLM lands, Instruction Memorandum NV-2013-009 provides more specific regulatory mechanisms for managing sage grouse habitats and provides consistency in management direction based on scientific recommendations. However, this direction was only intended to be in effect until BLM resource management plans are revised.

Alternatives B and C

Habitat Quantity and Quality. The action alternatives provide standards and guidelines specific to quantity and quality of sage grouse habitats. Some of these were described in previous discussions (see previous "Non-Native and Native Invasives," "Wildfires and Altered Fire Regimes," "Infrastructure," and "Livestock Grazing and Management" sections) while others are applicable to "Urbanization," "Mining," "Renewable Energy," "Disease," "Predation," and "Recreation" risk factors and threats (discussed below).

Primary mechanisms for providing adequate quantity of habitat consist of measures that curtail or preclude further habitat loss as well as those prescribing restoration of degraded or formerly suitable habitats. Both action alternatives prescribe removal of phase 1 and 2 pinyon-juniper located near meadows and near proximity to leks during habitat restoration projects. Both action alternatives would mitigate long-term negative impacts to the extent practicable as well as apply best management practices (BMPs) for each resource as appropriate to restore, conserve and enhance Bi-state DPS and its habitat as well as require buffers, timing limitations, or offsite habitat restoration for all new or renewed discretionary actions in Bi-state DPS habitat to mitigate potential long-term negative impacts. Both action alternatives also address risk posed by further habitat loss due to management activities, but do so using different strategies and allowances.

Alternative B would require mitigation resulting in no net loss of habitat due to nondiscretionary actions, surface disturbance (fluid minerals), and pit expansion (mineral material use). Short-term habitat loss due to discretionary and nondiscretionary activities other than fluid minerals and mineral material pit expansion would not be mitigated under alternative B. Situations where this could arise include impacts to meadows or grass-forb component of other habitats where the site may be impacted for one to several years with the expectation that the site would be restored in a relatively short timeframe. In addition, for fluid minerals, allowable surface disturbance would be limited, where technically feasible and consistent with valid existing rights, to an average of one site per 640 acres on average, with no more than 3 percent total anthropogenic surface disturbances within habitat.

Alternative C requires that site-specific project mitigation occurs if needed to insure no unmitigated net loss of habitat due to anthropogenic disturbance. There is direction to manage Bi-state DPS habitats so that total anthropogenic disturbances affect less than 3 percent of the total sage grouse habitat on Federal lands within the Bodie Mountain/Grant, Desert Creek/Fales, and White Mountains population management unit (PMU) boundaries and less than 1.5 percent in the Pine Nut PMU (due to higher presence of risk factors in this PMU. Alternative C also requires management to assess habitat availability at the landscape scale (see table 2-4).

In comparison, alternative B mitigates potential habitat loss due to nondiscretionary fluid mineral and mineral material sites, and for other activities that pose a long-term negative impact to sage grouse, and limits fluid mineral uses to less than 3 percent disturbance. However, alternative C would require that all

habitat-disturbing activities be mitigated ensuring no net loss of habitat and that habitat availability be assessed at a larger scale. In addition to no net loss, all activities would be limited to 3 percent or less disturbance of habitats within corresponding PMUs, thereby further reducing risk of habitat loss due to management activities compared to alternative B.

Habitat quality is addressed under both action alternatives. Alternatives B and C reduce disturbance to sage grouse by directing to time implementation of habitat restoration projects so they cause the least disturbance to Bi-state DPS individuals, and populations as possible. Both also require buffers, timing limitations, or offsite habitat restoration for all new or renewed discretionary actions in Bi-state DPS habitat to mitigate potential long-term negative impacts. Alternatives B and C also prescribe restoration of native (or desirable) plants and create landscape patterns which most benefit Bi-state DPS. Both action alternatives are similar in providing for increased habitat quality in comparison to alternative A.

Connectivity. The Bi-state DPS landscape is fragmented by areas of agriculture and urbanization, as well as areas of naturally-occurring and encroaching pinyon-juniper. Sage grouse habitats within and between PMUs are often separated by stretches of unsuitable areas that may inhibit sage-grouse movements across the landscape. Both alternatives B and C provide a limited amount of management direction to maintain or enhance suitability of connective area. Management direction under both alternatives applies primarily to mineral uses. Alternative B prescribes for mineral uses that, in connective area, maintain vegetation characteristics suitable to sage-grouse to the extent technically feasible. Alternative C states that where valid existing rights exist, in connective area, maintain vegetation characteristics suitable to sage grouse to the extent technically feasible. In addition, alternative C provides additional direction though not specific to connectivity which states, “Vegetation treatments and post-disturbance restoration should seed and/or transplant sagebrush to restore large patches of sagebrush cover and connect existing patches. (C-Wild-S-02)”.

Given the fragmented nature of the Bi-state landscape and the level of apparent isolation of subpopulations, additional management direction for connective area may be necessary to facilitate sage grouse movement, reduce isolation, and increase genetic interchange between subpopulations.

Connective areas within the amendment area have been mapped, though the mapping process and connective area polygons will continue to be updated as additional information is gathered (figure 3-1). Mapping was conducted using 2010 National Agriculture Imagery Program (NAIP) satellite imagery, modeled terrain and topographic map information, Landfire vegetation data (LANDFIRE 2014), and sage grouse telemetry locations provided by U.S. Geological Survey, Western Ecological Research Center, Dixon Field Station. Telemetry locations were used to indicate concentration areas as well as movement patterns of sage grouse between habitats. Mapped areas were located with consideration for movement within the amendment as well as movement to Bi-state habitats outside the amendment area.

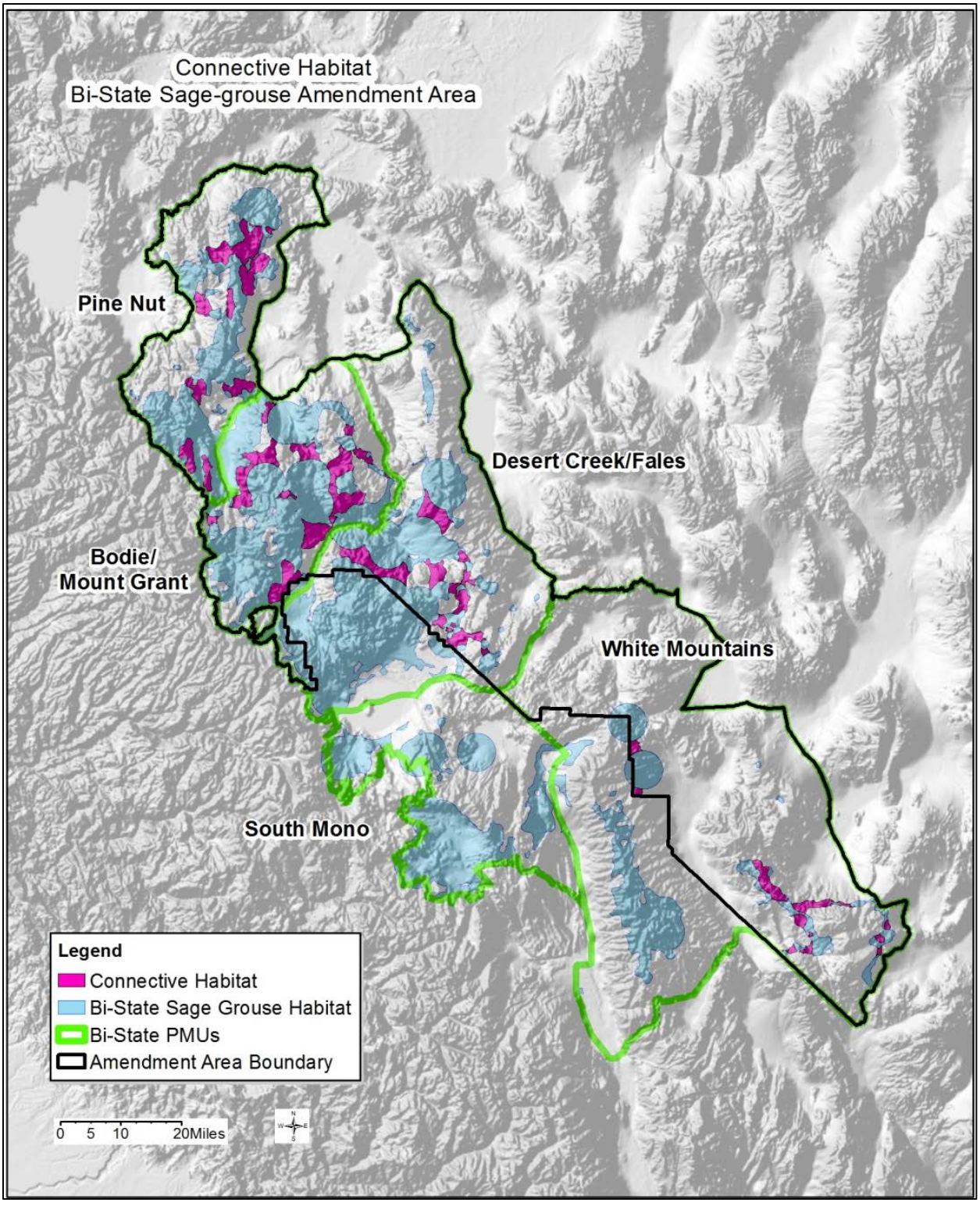

Figure 3-1. Proposed connective area, alternatives B and C

Urbanization

Alternative A (No Action)

Current direction pertaining to retention of existing sage grouse habitats currently under Forest Service or BLM ownership is largely lacking. The Tonopah RMP directs retention of BLM ownership of lands within 2 miles of nesting habitat and BLM policy is that lands are retained unless specifically identified for disposal.

Alternatives B and C

The action alternative s address the threat of urbanization identically through management direction that prescribes (1) retention in Federal ownership of sage grouse habitats unless relinquishing these lands provides a net benefit to sage grouse, and (2) identification of private parcels containing Bi-state DPS habitat for inclusion in the land acquisition plan. The net effect would be no loss of Federal lands with habitat (unless beneficial to Bi-state DPS) as well as potential acquisition of private lands that may otherwise be developed or converted to non-habitat.

Mining: Minerals/Energy Development (Including Geothermal Leasing)

Alternative A (No-Action)

Management direction under alternative A provides some measures of protection from mining activity-related disturbance.

Under the Toiyabe LRMP, sage grouse protections are implemented on a project-by-project basis according to goals, desired future condition, and standards and guidelines described for sensitive species and their habitats. No management direction pertaining to mineral and energy development and sage grouse disturbance was found in the Toiyabe LRMP.

Under the Tonopah RMP, seasonal restrictions are prescribed to avoid disturbance. In the Carson City District, restrictions are established in the spring and early summer for six sage grouse strutting grounds (leks) pertaining to oil and gas leasing as well as geothermal leasing.

Alternatives B and C

Numerous elements have been incorporated into the action alternatives to reduce risk of mining-related activities to sage grouse and sage grouse habitats. These include mitigation of long-term effects, distance buffers and timing/seasonal restrictions, reclamation requirements, concentration of activities in previously disturbed areas, removal of unnecessary infrastructure, and incorporation of noise-reduction devices, all of which decrease risk in comparison to alternative A.

Distinction exists between alternatives B and C concerning expansion of existing activities, permit renewal and issuance of new permits for discretionary actions. Alternative C would not allow new sale of mineral materials in habitat and prohibits expansion of existing mineral material sites. This alternative also prescribes to petition the BLM to withdraw locatable minerals, subject to valid existing rights within habitat; and, upon expiration or termination of existing leases, do not consent to leasing if inquired by the BLM. In addition, alternative C would not allow consent to fluid mineral leasing within habitat unless only under no-surface-occupancy stipulation. Each of these restrictions would reduce potential surface disturbance to sage grouse habitat due to mining-related activities. Alternative B would restrict mineral material activities similarly, but allows mineral material use and expansion of existing pits only with no unmitigated net loss of habitat. Alternative B does not require petitioning for locatable mineral withdrawal, nor does it preclude permit renewal for expired or terminated fluid mineral leases. Whereas alternative C precludes surface occupancy for fluid minerals, alternative B allows fluid mineral surface

occupancy subject to one site per square mile, with no more than 3 percent surface disturbance within habitat and requires incorporation of mitigation to ensure no net loss of habitat. Overall, both action alternatives reduce risk associated with mining, but alternative C provides a higher level of sage grouse habitat conservation.

Renewable Energy (Wind and Solar Energy)

Alternative A (No Action)

No direction pertaining to management of wind and solar energy resources was found in any of the land management plans addressed by this analysis. Lands special use proposals are analyzed through site-specific environmental analysis. Stipulations are included to minimize impacts to resources.

Alternatives B and C

Subject to other restrictions alternative B does not address risks posed by wind and solar energy facilities. It states that industrial wind and solar energy facilities may be authorized to provide on-site power generation. Alternative B provides no management guidance for utility-scale facilities. However, alternative C precludes utility-scale wind and solar facilities in habitat. Therefore, alternative B is similar to alternative A in addressing renewable energy risk while alternative C removes risk by precluding these facilities in sage grouse habitats.

Disease (West Nile Virus)

Alternative A (No-Action)

No provisions pertaining to reduction of sage grouse disease potential are found in alternative A.

Alternative B and C

The action alternatives each provide an identical measure to reduce risk of West Nile Virus. Requirement to drain tanks and troughs associated with range management is expected to decrease risk of West Nile Virus to sage grouse in comparison to alternative A.

Predation

Alternative A (No-Action)

No direction pertaining to management of risk to predation was found in any of the land management plans addressed by this analysis. Special use permits are issued on a case-by-case basis after environmental analysis, and may include stipulations to mitigate impacts to resources.

Alternatives B and C

The action alternatives address predation risk primarily through modifications and restrictions of infrastructure (i.e., perch sites) and proper treatment of refuse (i.e., predator attractants). Both alternatives preclude structures taller than surrounding vegetation in proximity to leks. Alternative B precludes such structures within 2 miles of lek centers while alternative C precludes tall structures within 4 miles of lek centers. Coates et al. (2013) reported that the average distance from sage grouse nest sites to leks was approximately 1.2 miles, while 95 percent of nest distribution occurred within about 3 miles of leks, 75 percent were within 1.4 miles, and 50 percent were within 1 mile. Therefore, the 2 mile restriction under alternative B could be expected to reduce predator risk for approximately 85 percent of nesting sage grouse whereas the 4 mile restriction under alternative C would reduce risk for an estimated 100 percent of nests. In addition, alternative C would provide additional risk reduction by requiring removal of all range improvements greater than 8-feet tall that could serve as predator perches within Bi-state DPS

habitat. While both action alternatives reduce predation risk in comparison to alternative A, alternative C provides increased risk reduction compared to alternative B.

Recreation

Alternative A (No Action)

Alternative A provides some limitations on vehicle access under all Humboldt-Toiyabe National Forest and BLM land management plans pertinent to this analysis. The Toiyabe LRMP direction provides for seasonal or year-round restriction of ORV (off-road vehicle)use in order to limit or avoid impacts to key wildlife habitats. It also prescribes that roads, trails, and "areas" will be designated in the ranger district travel plans and maps for motorized vehicle use, thereby preventing general cross-country ORV use. Under the Carson City RMP, vehicles are restricted to designated roads and trails in the upper elevations of the Pine Nut Range. In addition, all existing roads and trails will be designated open to OHV use except where roads or trails impact sensitive meadows, seeps, springs and other waters as identified in the watershed decisions. Vehicles are excluded from any riparian area associated with meadows, marshes, springs, seeps, ponds, lakes, reservoirs or streams. Outside of these restrictions, there are portions of BLM lands currently open to cross-country vehicle travel.

Alternatives B and C

Both action alternatives contain management direction designed to reduce risk associated with recreation activities and infrastructure by requiring buffers and timing/seasonal use restrictions, proper containment and disposal of refuse, and restriction off-highway vehicle (OHV) use. Primary differences between these alternatives concern restrictions associated with OHV events, off-road travel on BLM lands, and authorization of outfitter/guide permits in proximity to leks.

Alternative B would restrict OHV events in habitat to occur outside of winter habitats and outside of 0.25 mile from leks and only after 10 a.m. during the breeding period. While this would reduce potential disturbance to breeding at lek sites, it would continue to allow disturbance where birds are likely residing during the day after departing the breeding site and may negatively impact lek attendance if the disturbance is pronounced. Alternative C would preclude authorizing OHV events in habitat thereby avoiding potential disturbance of birds during all seasons in all habitats.

Alternatives B and C proposed to limit motor vehicle use to existing roads, primitive roads, and trails until BLM completes route designation in habitat (B-AR-S-02) thereby reducing potential risk to sage-grouse associated with off-road travel.

Lastly, alternative C provides no allowances for outfitter/guide activities with 4 miles of leks whereas outfitter/guide activities are not addressed under alternative B. This would reduce potential risk of disturbance due to horse and packing activities; however, the existing risk to sage grouse posed by outfitter/guide horse and packing activities is expected to be minimal or low.

Climate

Alternative A (No Action)

There are no elements contained in current land use plans pertinent to this project that are identified to reduce risk of climate factors.

Alternatives B and C

Both action alternatives are identical in providing reduction of risk associated with climate factors. Land managers should consider seed collection from the warmer component of the species current range when

selecting native species for restoration. This is in response to projections of warming climates and subsequent effects to sage-grouse habitats. Collection of seed from warmer portions of a plant species' range is expected to provide improved resilience of vegetation that is seeded or planted for restoration, thereby providing reduced risk to climate factors in comparison to alternative A.

Cumulative Effects on Bi-state DPS summarized

There could be cumulative effects in addition to impacts described above. Sagebrush habitat also occurs on private, state, and adjacent agency lands. There are some existing conservation measures on these other lands. Cumulatively, however, there could be additional loss, degradation, or disturbance from recreation and travel, rights-of-way granted, energy and mineral development, range management, and fire and fuels management in sagebrush habitat. Ongoing activities including Forest Service and BLM land management planning are likely to incorporate management direction that provides some level of protection and improvement of Bi-state DPS habitats. Past travel management plans on the Humboldt-Toiyabe National Forest have prescribed reductions in open road densities in addition to other travel restrictions that likely benefit sage grouse. Ongoing geothermal leasing on Humboldt-Toiyabe National Forest lands may have some measure of added effect, but cumulatively this is likely to be minor at the project area scale.

Summary of Alternative Comparison

This analysis addresses the potential impacts of each alternative on Bi-state DPS and their habitats in terms of the following resource areas: isolation/habitat fragmentation, fire, invasive weeds, conifer encroachment, minerals /energy development, infrastructure, and livestock grazing/wild horses management. Of the 4.24 million acres of Forest Service and BLM lands within the amendment area, these action alternatives seek to modify management of sage grouse habitats on roughly 15 percent of those lands.

The primary difference between alternative A (no change in current direction) and alternatives B and C, is that the action alternatives would put into place regulatory authority and direction to protect and conserve Bi-state DPS habitat and reduce negative effects associated with land management actions in the resource areas above. Under current circumstances, alternative A does not provide the regulatory mechanisms or assurances to protect, conserve, or enhance habitat to the extent desired.

By comparison, alternative C provides the highest level of risk and threat reduction by providing management direction in sage grouse habitat through standards that:

(a) remove discretionary surface occupancy of minerals-related infrastructure,

(b) remove livestock grazing,

(c) provide for invasive grass control,

(d) preclude construction of tall structures and transmission lines,

(e) reduce risk of habitat loss to wildfire and fuels treatment,

(f) preclude construction of new recreation, solar, and wind energy facilities,

(g) restrict OHV use to existing routes,

(h) reduce disturbance from existing discretionary and nondiscretionary activities, and

(i) manage select areas between blocks of habitat to provide for more effective sage grouse movement on the landscape.

Alternative B provides management direction that would substantially increase conservation of sage grouse habitats and reduction of risks and threats in a manner that reduces risk factors and threats while still providing opportunities for multiple uses of resources. Whereas alternative C precludes some activities and uses described above, alternative B provides allowance for these uses with measures that reduce or mitigate negative impacts. For example, whereas alternative C removes livestock grazing in sage grouse habitats, alternative B allows continued grazing, but prescribes utilization standards consistent with science recommendations for continued grazing. The result is a substantial increase in conservation effectiveness for sage grouse habitats over alternative A, but retention of relatively higher level of risk in comparison to alternative C for some risk factors and threats.

Given the current state of Bi-state DPS habitat and population overall, maintaining current management direction (alternative A) may not provide the regulatory mechanisms or the assurances required to protect Bi-state DPS habitats and populations. In contrast, the action alternatives provide regulatory mechanisms expected to result in positive effects and assurances, which improve conditions for Bi-state DPS within the amendment area.

Summary of Effects and Determination

There would be no action associated with alternative A; therefore this alternative would have no direct, indirect, or cumulative effects. Management direction provided under alternatives B and C increase protection of Bi-state DPS habitats and consequently decreases risk to Bi-state DPS individuals and population. Effects to Bi-state DPS and their habitats due to alternatives B and C would be generally beneficial due to reducing anthropogenic influences to sagebrush habitats known and identified as such. By comparison, alternative C provides the highest level of reduction in risk factors and threats as stated above. Under current circumstances, alternative A does not provide the regulatory mechanisms or assurances to protect, conserve, or enhance Bi-state DPS habitats to the extent desired. There would be beneficial effects to Bi-state DPS as a result of implementing either alternative B or C. Therefore, the Bi-state Sage-grouse Forest Plan Amendment project may affect individuals, but is not likely to contribute to the need for Federal listing or result in loss of viability for the Bi-state DPS in the planning area.

Effects to Range Improvements and Domestic Livestock Grazing

Introduction

Domestic livestock grazing is a widespread use of the Forest Service- and BLM-administered public lands within the project area. This report will address the current grazing management within Bi-state DPS habitat and the effect of the proposed action as it relates to grazing management.

Summary

Implementation of alternative B could result in changes to the permitted seasons of livestock use, closing areas to grazing, and relocating or removing livestock watering and handling facilities. The magnitude of these effects on current livestock management and any potential losses of permitted AUMs (animal unit months) are unable to be predicted without site-specific assessments.

Implementation of alternative C would result in closing 87 grazing allotments and eliminating 85,886 permitted AUMs. Existing range improvements would be removed or modified to eliminate negative impacts to Bi-state DPS and its habitat.

Affected Environment

Domestic livestock grazing is currently authorized on approximately 66 percent of Forest Service- and BLM-administered public lands within the amendment area. An additional 4 percent of the amendment area is included in vacant or closed grazing allotments.

There are 87 grazing allotments that contain Bi-state DPS habitat within the amendment area. These allotments encompass 2,118,811 acres and contain 649,992 acres of Bi-state DPS habitat. These allotments are currently permitted for 85,886 AUMs. Forty-three allotments are grazed by cattle and 29 are grazed by sheep. There are 15 additional allotments within the amendment area that are either closed or vacant for various reasons. About two-thirds of the permitted use is for spring and/or summer use and the other one-third is for fall and/or winter use. Table 3-11 summarizes the livestock grazing information within the amendment area.

Table 3-11. Livestock grazing information

Forest Service Ranger District or BLM District	Number of Allotments Containing Bi-state DPS Habitat	Allotment Acres	Permitted AUMs	Acres of Bi-state DPS Habitat in Allotments
Bridgeport Ranger District	50	796,088	33,744	376,705
Carson Ranger District	10	52,879	5,578	42,594
Battle Mountain District	5	704,290	18,520	57,459
Carson City District	22	565,554	28,044	173,234
Total	87	2,118,811	85,886	649,992

The Humboldt-Toiyabe National Forest manages 60 grazing allotments that contain Bi-state DPS habitat. These allotments encompass 848,967 acres within the amendment area and are currently permitted for 39,322 AUMs. A total of 419,299 acres of Bi-state DPS habitat is found in these allotments.

The BLM manages 27 grazing allotments that contain Bi-state DPS habitat. These allotments encompass 1,269,844 acres within the amendment area and are currently permitted for 46,564 AUMs. A total of 230,693 acres of Bi-state DPS habitat is found in these allotments.

The critical disturbance period for sage grouse is typically March 1 to June 30. Of the 87 grazing allotments containing sage grouse habitat, 55 have permitted seasons of use that overlap with the critical disturbance period. There are seven allotments where the full season of use falls between March 1 and June 30.

The primary management objectives for livestock grazing have been to improve rangeland health, improve riparian functioning condition, and restore native plant communities. These objectives are accomplished through the strategic placement of range improvements (fences and water) and salt, use of rest-rotation and deferred rotation grazing systems, and herding. Annual adjustments are made according to forage availability and the prevalence of drought conditions or above-average precipitation.

Range improvements are found throughout the amendment area and help distribute livestock across the grazing allotments. Range improvements include fences and water developments. Fences are typically three- to four-strand barbed wire, although other types of fences are present. Water developments include reservoirs, developed springs, and wells. Developed springs and wells commonly include pipeline systems that distribute water to one or more metal, fiberglass, or rubber-tire troughs or tanks. Reservoirs

and developed springs are typically located in drainages and depressions, while wells and their associated delivery tanks are typically located on uplands. Table 3-12 summarizes the number of range improvements in Bi-state DPS habitat.

Table 3-12. Range improvements within Bi-state DPS habitat

Forest Service Ranger District or BLM District	Miles of Fence within Bi-state DPS Habitat	Number of Sections with Fence Densities >1.6 Miles per Section	Number of Watering Facilities within Bi-state DPS Habitat	Number. of Handling Facilities within Bi-state DPS Habitat
Bridgeport Ranger District	173	22	89	7
Carson Ranger District	26	6	4	0
Battle Mountain District	4	0	2	0
Carson City District	9	1	0	0
Total	212	29	95	7

Environmental Effects

Management Indicators

Table 3-13 shows the indicators used in this analysis.

Table 3-13. Comparison of indicators by alternative

Indicator	Alternative A (No Action)	Alternative B (Modified Proposed Action)	Alternative C
Active AUMs in allotments containing Bi-state DPS habitat	85,886	85,886	0
Restrictions to the ability to construct or maintain range improvements	No Change	Increase	Increase
Allotment acres closed to livestock grazing in Bi-state DPS habitat	0	0	2,118,811
Allotment acres open to livestock grazing that contain Bi-state DPS habitat	2,118,811	2,118,811	0
Changes to timing, duration or frequency of authorized use, including temporary closures	No Change	Increase	Not Applicable, No Grazing Use Proposed

Alternative A – No Action

Direct/Indirect Effects. There are no direct or indirect effects from selecting alternative A. Domestic livestock grazing would continue under the terms and conditions of existing grazing permits until updated by allotment level NEPA analyses.

Alternative B –Proposed Action

Direct/Indirect Effects. Alternative B contains multiple standards and guidelines that are designed to eliminate or reduce negative impacts from domestic livestock grazing.

In this alternative, standards would ensure that grazing permits and annual operating instructions include terms, conditions, and directions to move rangeland condition toward or to maintain Bi-state DPS habitat desired conditions. Livestock grazing could be modified by restricting areas open to grazing, changing

grazing systems, adjusting seasons of use or class of livestock and placing additional restrictions on the construction of range improvements. These changes would result in direct effects to livestock grazing.

Utilization standards would be applied to Bi-state DPS habitat within grazing allotments. Alternative B would require that 7 inches of residual cover be maintained within 3 miles of active leks during the breeding and nesting season (March 1 to June 30). This alternative would apply the utilization standards in table 3-14 to Bi-state DPS habitat within grazing allotments.

Table 3-14. Forage utilization standards for Bi-state DPS habitat

Community Type	Percent Utilization of Key Species	Terms and Conditions
Mountain Big Sagebrush	<45% herbaceous species; <35% shrub species	Livestock removed in 3 to 5 days of reaching utilization level
Wyoming and Basin Big Sagebrush	<35% herbaceous species; <35% shrub species	Livestock removed in 3 to 5 days of reaching utilization level
Black Sagebrush	<35% herbaceous species; <35% shrub species	Livestock removed in 3 to 5 days of reaching utilization level
Riparian and Wet Meadows	<50% herbaceous species; <35% woody species or: average stubble height of at least 4 to 6 inches (depending on site capability and potential) for herbaceous riparian vegetation	Average stubble height 4 to 6 inches; livestock removed in 3 to 5 days of reaching utilization level based on site or: (sequential action) no grazing from May 15 to August 30 in brood rearing habitat

Note: Monitoring would be conducted using accepted protocols (including but not limited to: Burton et al. 2011; BLM 1996; Platts 1990).

Sources: Holechek 1988; Holechek et al. 1998; Burton et al. 2011; BLM 1996; Platts 1990.

These utilization standards are generally more restrictive than what is currently permitted within Bi-state DPS habitat. Reducing allowable utilization in Bi-state DPS habitat will directly affect livestock grazing. Livestock management practices may need to change in order to comply with the new utilization standards. This could include changes in grazing systems, increased herding of livestock, shortened seasons of use or reductions in permitted livestock numbers. These changes could increase the grazing permittee's operating costs and reduce their permitted AUMs.

In alternative B, standards and guidelines apply to range improvements, supplemental feeding locations and sheep bedding grounds. Range improvements would still be constructed under alternative B; however, their primary purpose would be to maintain or improve Bi-state DPS habitat desired conditions. Existing range improvements would be modified or removed to reduce impacts to Bi-state DPS and its habitat. Supplemental feeding stations would be located away from leks and riparian areas.

Implementation of alternative B should move rangeland conditions toward the Bi-state DPS habitat desired conditions which could indirectly affect livestock grazing by increasing vegetation productivity and improving forage production in the long term.

Alternative C

Direct/Indirect Effects. Alternative C would close all grazing allotments containing Bi-state DPS habitat. Eighty-seven grazing allotments would be closed to domestic livestock grazing. Permitted AUMs on the allotments would be eliminated. Construction and maintenance of range improvements would cease. Existing range improvements would be removed or modified to eliminate impacts to Bi-state DPS and its habitat.

Cumulative Effects

Alternative A. Because there are no direct or indirect effects, there are no cumulative effects if alternative A is selected.

Alternative B. The Forest Service and BLM will continue to analyze livestock grazing allotments under project-level NEPA decisions. Future decisions could involve re-authorizing grazing use on allotments, changing terms and conditions of grazing permits, and closing allotments.

Alternative C. The Forest Service and BLM will continue to analyze livestock grazing allotments under project-level NEPA decisions outside of Bi-state DPS habitat. Future decisions could involve re-authorizing grazing use on allotments, changing terms and conditions of grazing permits, and closing allotments.

Effects to Weeds

Noxious and Invasive Weed Management Summary

Alternative B will apply standards and guidelines designed to enhance noxious and invasive weed control efforts. These standards and guidelines would reduce the likelihood of introducing or spreading noxious and invasive weed species as well as reducing the amount and density of current infestations. Alternative B will also promote healthy vegetation communities, reduce disturbance and reduce the risk of wildfire within Bi-state DPS habitat which will further reduce opportunities for noxious and invasive weed establishment and spread.

Alternative C will apply standards and guidelines designed to enhance noxious and invasive weed control efforts. These standards and guidelines would reduce the likelihood of introducing or spreading noxious and invasive weed species as well as reducing the amount and density of current infestations. Alternative C will also promote healthy vegetation communities, restrict total anthropogenic disturbances within PMUs and reduce the risk of wildfire within Bi-state DPS habitat which will further reduce opportunities for noxious and invasive weed establishment and spread. Alternative C emphasizes control of invasive annual grass species as well improving resistance of Bi-state DPS habitat to annual grass invasion.

Affected Environment

Nonnative noxious and invasive weeds are recognized as a primary threat to the long-term longevity of the Bi-state DPS (USFWS 2013). Invasive weed species out-compete native vegetation that provides food and cover for sage grouse. They create a monoculture that can increase wind and water erosion; decrease capture, storage, and proper release of precipitation; and alter nutrient cycling. Invasive annual grasses such as cheatgrass and medusahead can cause an increase in fire frequency that can result in conversion of sagebrush habitats to annual grass dominated communities.

There are approximately 1,800 acres of noxious weeds within the amendment area on BLM- and Forest Service-managed lands. Table 3-15 shows the noxious weed species currently found within the amendment area. Noxious weeds are usually found in places where the native plant community has been degraded and where there is sufficient soil moisture; although, noxious weeds can invade healthy ecosystems. The infestations within the amendment area tend to be located in riparian areas, burned areas, and along roadsides.

Table 3-15. Noxious weeds within the amendment area

Common Name	Scientific Name
Russian knapweed	*Acroptilon repens*
Hoary cress	*Cardaria draba*
Musk thistle	*Carduus nutans*
Spotted knapweed	*Centaurea biebersteinii*
Diffuse knapweed	*Centaurea diffusa*
Yellow starthistle	*Centaurea solsitialis*
Canada thistle	*Cirsium arvense*
Poison-hemlock	*Conium maculatum*
Common St. Johnswort	*Hypericum perforatum*
Perennial pepperweed/Tall whitetop	*Lepidium latifolium*
Purple loosestrife	*Lythrum salicaria*
Scotch thistle	*Onopordum acanthium*
Medusahead	*Taeniatherum caput-medusae*
Saltcedar	*Tamarix* spp.

The BLM and Forest Service utilize an integrated pest management approach to prevent the introduction and establishment of noxious weeds and to control existing infestations. This includes education and preventative measures, as well as physical, biological, chemical, and cultural treatments. Current policy allows the BLM and Forest Service to treat other invasive species; however, there is no requirement to do so as there is with state-listed noxious weeds.

Noxious and Invasive Weed Management Environmental Effects

Management Indicators

Table 3-16 shows the indicators used in this analysis.

Table 3-16. Comparison of indicators by alternatives

Indicator	Alternative A	Alternative B	Alternative C
Change in the likelihood for noxious weed or invasive annual grass introduction or spread	No change	Reduced likelihood	Reduced likelihood
Change in the amount or density of noxious weeds or invasive annual grasses	No change	Decrease	Decrease

Alternative A – No Action

Direct/Indirect Effects. There are no direct or indirect effects if alternative A is selected. Management of noxious and invasive weeds will continue as described under "Affected Environment".

Alternative B –Proposed Action

Direct/Indirect Effects. Alternative B contains several standards and guidelines that would directly affect noxious and invasive weed management by requiring the use of certified weed-free seed when re-seeding; allowing the use of domestic livestock to control undesirable vegetation in order to achieve Bi-state DPS habitat desired conditions; and by requiring agency personnel, contractors, and permit holders working in areas with known weed infestations to clean vehicles of dirt, mud, and visible plant debris before entering

a different area to reduce the spread of noxious weeds. These standards and guidelines would reduce the likelihood of introducing or spreading noxious and invasive weed species as well as reducing the amount and density of current infestations.

This alternative prohibits the use of herbicides during the critical disturbance period. Herbicide use would only be allowed in Bi-state DPS habitat if other integrated pest management approaches are inadequate or infeasible. Limiting the timing of herbicide application could hinder noxious and invasive weed management efforts.

Promoting healthy vegetation communities, reducing disturbance, and reducing the risk of wildfire would result in indirect effects to noxious and invasive weed management. Healthy Bi-state DPS habitat is more resistant to weed invasion. Reduced disturbances will result in less opportunity for noxious and invasive weeds to become established. Reduced risk of wildfire will also reduce the risk of conversion of Bi-state DPS habitat to communities dominated by exotic, annual grass and weed species.

Alternative B allows for disturbances to occur within Bi-state DPS habitat. Implementing fuels reduction treatments, removing pinyon-juniper, relocating or removing infrastructure, and other habitat restoration projects could occur on the landscape. These types of projects would have a disturbance footprint that could lead to new noxious or invasive weed infestations within Bi-state DPS habitat. Implementing the standards and guidelines in alternative B should reduce the risk of inadvertently introducing or spreading noxious and invasive species.

Alternative C

Direct/Indirect Effects. The five goals of alternative C and their associated objectives, standards, and guidelines are intended to conserve, enhance, and/or restore sagebrush and associated habitats to provide for the long-term viability of the Bi-state DPS. The direct and indirect effects are similar to those described for alternative B. Alternative C will also apply standards and guidelines designed to enhance noxious and invasive weed control efforts. These standards and guidelines would reduce the likelihood of introducing or spreading noxious and invasive weed species as well as reducing the amount and density of current infestations. Alternative C will also promote healthy vegetation communities, restrict disturbances and reduce the risk of wildfire within Bi-state DPS habitat which will further reduce opportunities for noxious and invasive weed establishment and spread.

The primary differences between alternative C and B are the emphasis on control and prevention of invasive annual grass and weed species, additional restrictions applied to various land uses, increased limits on total anthropogenic disturbance within PMUs, and an overall greater emphasis on habitat restoration and wildfire risk reduction. The direct and indirect effects of alternative C will be similar to alternative B, but would have a greater magnitude. Disturbed areas would occupy a smaller portion of the amendment area, increased treatment of invasive annual grasses would occur, and more restricted land uses as well as no domestic livestock grazing would increase the effectiveness of weed prevention and control efforts across Bi-state DPS habitat.

Cumulative Effects

The spatial boundary for analyzing the cumulative effects to noxious and invasive weed management is the entire amendment area, because noxious and invasive weed populations are found throughout the amendment area.

Alternative A. Because there are no direct or indirect effects, there are no cumulative effects if alternative A is selected.

Alternative B. The Forest Service and BLM will continue to treat noxious and invasive weed infestations using integrated pest management approaches in areas outside of Bi-state DPS habitat.

Alternative C. Cumulative effects of alternative C are the same as those described for alternative B.

Effects to Wild Horses and Burros

Introduction

BLM herd management areas (HMAs) and Forest Service wild horse and burro territories (WHBTs) make up about 25 percent of the project area. Wild, free-roaming horses and burros are currently managed to ensure the health of the public lands so that the species depending on them, including the Nation's wild horses and burros, can thrive.

Summary

Implementation of alternative B could impact six HMAs/WHBTs within the amendment area. Revisions to management plans and AMLs (appropriate management levels) may be required to meet desired conditions for Bi-state DPS habitat. Managing for the Bi-state DPS habitat desired conditions by adjusting wild horse and burro populations, reducing domestic livestock utilization and removing pinyon-juniper could improve forage production and availability over the long term which would have a beneficial impact on wild horse and burro populations.

Implementation of alternative C could impact six HMAs/WHBTs within the amendment area. Alternative C would eliminate competition between domestic livestock and wild horses and burros. Revisions to management plans and AMLs may be required to meet desired conditions for Bi-state DPS habitat. Managing for the Bi-state DPS habitat desired conditions by adjusting wild horse and burro populations, eliminating domestic livestock grazing and removing pinyon-juniper could improve forage production and availability over the long term which would have a beneficial impact on wild horse and burro populations.

Affected Environment

Following passage of the Wild Free-Roaming Horses and Burros Act of 1971 (PL 92-195, as amended by Congress in 1976, 1978, 1996, and 2004; the Act), BLM herd areas and herd management areas (HMAs) and Forest Service wild horse and burro territories (WHBTs) were identified. Herd areas and territories are locations where wild horse and burro populations were found when the Act was passed. HMAs and WHBTs are areas within these identified herd areas, in their entirety or part, where it was established and affirmed through land use plans that sufficient forage, water, cover, and space existed to support the long-term management of healthy wild horse or burro populations.

The BLM program emphasis is beyond just establishing an appropriate management level (AML) and conducting wild horse gathers to include a variety of management actions that further facilitate the achievement and maintenance of viable and stable wild horse populations and a "thriving natural ecological balance." Management actions resulting from shifting program emphasis include increasing fertility control, adjusting sex ratio, and collecting genetic baseline data to support genetic health assessments. The Forest Service has been a cooperating agency to these additional management efforts.

Wild horses are a long-lived species with survival rates estimated between 80 and 97 percent and may be the determinant of wild horse population increases (Wolfe 1980; Eberhardt et al. 1982; Garrott and Taylor 1990). Wild horse numbers appear to be limited principally by water availability and winter forage. Predation and disease have not substantially regulated wild horse population levels within or outside the planning area. Throughout the HMAs few predators exist to control wild horse populations. Some

mountain lion predation occurs, but does not appear to be substantial. Coyotes are not prone to prey on wild horses unless they are young or extremely weak. Being a non-self-regulating species, there would be a steady increase in wild horse numbers for the foreseeable future, which would continue to exceed the carrying capacity of the range. Animal movement and distribution are controlled by fencing and the distribution of watering sources.

There are 859,046 acres of wild horse and burro herd areas, HMAs, and WHBTs within the amendment area. There are 10 herd areas and territories within the amendment area. These areas overlap 108,617 acres of habitat. These identified herd areas were the basis for current identified HMAs as established through land use plans.

The BLM manages eight HMAs and the Forest Service manages two WHBTs in the amendment area. Five HMAs and one WHBT overlap Bi-state DPS habitat. Wild horse and burro populations in HMAs and WHBTs are managed within AMLs and corresponding forage allocations (AUMs). The AML is defined as the maximum number of wild horses that can be sustained within a designated HMA or WHBT that achieves and maintains a thriving natural ecological balance. The AML for each HMA and WHBT, in most cases, is expressed as a range with an upper and lower limit. The AUM allocation for wild horses and burros in HMAs and WHBTs is based on the upper limit of the AML range. Initial AMLs and the boundaries of each HMA and WHBT were established through previous land use plans to ensure that public land resources, including wild horse habitat, are maintained in satisfactory, healthy condition and that unacceptable impacts on these resources are minimized. The AML ranges are based on best available science and rangeland monitoring studies. HMA and WHBT acreages by habitat type along with current appropriate management levels are shown in table 3-17.

Table 3-17. BLM herd management areas and Forest Service territories within the amendment area

Herd Management Area or Wild Horse and Burro Territory	BLM District Office or Forest Service Ranger District	Total Acres in Amendment Area	Total Acres within Bi State DPS Habitat	Appropriate Management Level	Estimated Population
BLM					
Fish Lake Valley	Battle Mountain	67,025	24,273	54	29
Garfield Flat	Carson City	12,514	0	83–125	99
Marietta	Carson City	66,045	0	78–104	144
Montezuma Peak	Battle Mountain	31	0	146 h[1] 10 b[2]	47 h 67 b
Palmetto	Battle Mountain	116,487	17,856	76	0
Pine Nut Mountains	Carson City	104,306	23,816	119–179	293
Silver Peak	Battle Mountain	242,169	8,102	6 b	75 h 0 b
Wassuk	Carson City	51,743	8,356	109–165	139
Forest Service					
Montgomery Pass	Inyo National Forest	112,599	0	Not established	286
Powell Mountain	Bridgeport	86,126	26,214	29	30

[1] h = Horse.
[2] b = Burro.

The HMAs, WHBTs, and associated wild horse and burro populations within the planning area are managed within the established AML and management objectives identified within the land use plans, herd management area plan, or territory management plan. The AML, objectives, and management actions may be modified in future multiple-use decisions for the grazing allotments contained within an

HMA or WHBT. Various factors, including drought, historic grazing, wildfires, and wild horse population growth, may adversely affect habitat and, in some instances, herd health. Wild horses that establish home ranges outside of HMA, WHBT, or herd area boundaries are removed during gathers. Wild horses are removed from private lands at the request of the landowner and after reasonable efforts to keep the animals off private lands have failed.

The estimated population size of wild horses and burros within each HMA/WHBT is based on helicopter inventories, which occur every 2 to 3 years. These population inventory flights provide information pertaining to population numbers, foaling rates, distribution, and herd health. Inventory flights can occur throughout the year. Population estimates within the planning area show a total estimated population of 1,209 horses and burros. Population estimates indicate that the number of horses and burros exceeds the aggregated AML.

Although determined by population monitoring, it is generally necessary to gather horses and burros on a 3- to 4-year schedule to ensure that numbers remain within the AML. Unfortunately, this has not been consistently possible because of insufficient funding and holding space; therefore, AMLs are frequently exceeded. Following gathers, some animals are selected for return to the HMA or WHBT; excess horses or burros are placed in the adoption program, made available for sale, or in long-term holding.

Wild horses also compete with wildlife species for various habitat components, especially when populations exceed AML or habitat resources become limited (e.g., reduced water flows, low forage production, or dry conditions).

Current conditions within the planning area show that wild horse populations continue to grow, often exceeding AMLs. Wild horses will continue to be removed to regain and maintain appropriate management levels and rangeland health.

Environmental Effects

Management Indicators

Table 3-18 shows the indicators used in this analysis.

Table 3-18. Comparison of indicators by alternative

Indicator	Alternative A	Alternative B	Alternative C
Changes to HMA/WHBT AMLs	No change	Potential adjustments made to meet Bi-state DPS habitat desired conditions. Possible increase in frequency of gathers and population growth suppression treatments.	Potential adjustments made to meet Bi-state DPS habitat desired conditions. Possible increase in frequency of gathers and population growth suppression treatments.
Changes in the ability to manage wild horses and burros due to Bi-state DPS habitat conservation measures	No change	Increased forage availability due to reduced utilization by domestic livestock. Possible decrease in water distribution. Long-term improvement in rangeland conditions.	Increased forage availability due to no domestic livestock grazing. Possible decrease in water distribution. Long-term improvement in rangeland conditions.

Alternative A – No Action

Direct/Indirect Effects. There are no direct or indirect effects if alternative A is selected. Management of wild horses and burros will continue as described in "Affected Environment."

Alternative B –Proposed Action

Direct/Indirect Effects. The following HMAs/WHBTs contain Bi-state DPS habitat and would be affected by alternative B: Fish Lake Valley, Palmetto, Pine Nut Mountains, Powell Mountain, Silver Peak, and Wassuk.

Alternative B requires that AMLs be established or adjusted in order to achieve the Bi-state DPS habitat desired conditions. Each HMA/WHBT containing Bi-state DPS habitat would be evaluated to determine its impact on Bi-state DPS habitat and the AMLs would be adjusted accordingly.

Managing for the Bi-state DPS habitat desired conditions could improve forage production and availability over the long term which would have a beneficial impact on wild horse and burro populations. Modification or elimination of livestock watering facilities could reduce water availability resulting in increased wild horse and burro use at remaining facilities and the potential need for reduction of wild horse and burro numbers within a HMA/WHBT. Bi-state DPS habitat restoration projects that remove encroaching pinyon-juniper and treat invasive weed infestations would have a beneficial effect on wild horse and burro populations by improving plant community composition and forage availability.

Alternative C

Direct/Indirect Effects. The following HMAs/WHBTs contain Bi-state DPS habitat and would be affected by alternative C: Fish Lake Valley, Palmetto, Pine Nut Mountains, Powell Mountain, Silver Peak, and Wassuk.

Alternative C requires that AMLs be established or adjusted in order to achieve the Bi-state DPS habitat desired conditions. The direct effects on wild horse and burro populations would be the same as those described under alternative B.

Alternative C would eliminate domestic livestock within Bi-state DPS habitat. All grazing allotments containing Bi-state DPS habitat would be closed and AUMs allocated to domestic livestock would be eliminated. Removal of domestic livestock from Bi-state DPS habitat would eliminate competition between wild horses and burros and domestic livestock for forage.

Modification or removal of livestock watering facilities could reduce water availability resulting in increased wild horse and burro use at remaining facilities and the potential need for reduction of wild horse and burro numbers within a HMA/WHBT. Removal of existing fences could hinder wild horse and burro management efforts by removing barriers to horse and burro movement.

Alternative C would manage for Bi-state DPS habitat desired conditions much like alternative B. However, alternative C would place limits on the amount of anthropogenic disturbances within PMUs, place additional restrictions on various land uses, and emphasize increasing Bi-state DPS habitat resistance to invasion by annual grasses. These additional conservation measures would also benefit wild horse and burro populations.

Cumulative Effects

Alternative A. Because there are no direct or indirect effects, there are no cumulative effects if alternative A is selected.

Alternative B. The Forest Service and BLM will continue establishing and adjusting AMLs through HMA specific analyses. Gathers will continue to be implemented to remove excess animals and to apply fertility control treatments.

Alternative C. Cumulative effects for alternative C are the same as those described for alternative B.

Effects to Minerals

Affected Environment

Physiography

Most of the project area lies within the western portion of the Basin and Range Physiographic Province and lesser amounts of the uplifted Sierra Nevada Province. The Basin and Range Physiographic Province roughly corresponds in proximity to the Great Basin, a contiguous watershed region between the Sierra Nevada and the Rocky Mountains that has no natural outlet to the sea. Extensional forces started about 17 million years ago (Ma) which created the Great Basin. These forces have resulted in the present-day landscape of alternating mountain ranges and deep, sediment filled basins bounded by steep dipping north-south range front faults which characterize the much of the Great Basin.

Geologic Overview

The oldest rocks in the project area are Precambrian (greater than 540 Ma) schists. Paleozoic (250 to 540 Ma) rocks are present in areas, but Mesozoic (65 to 250 Ma) age rocks comprise the most extensive pre-Tertiary (greater than 65 Ma) outcrops exposed within the Great Basin portion of the project area. Mesozoic rocks in the Great Basin Province consist of Triassic (201 to 250 Ma) and Jurassic (145 to 201 Ma) metasedimentary and metavolcanic rocks and Jurassic and Cretaceous (65 to 145 Ma) granitic rocks. Over much of the project area, these Mesozoic granitic and metamorphic rocks are overlain by an extensive sequence of Cenozoic (younger than 65 Ma) volcanic and interbedded sedimentary rocks. All of these rocks have been exposed to extensive folding and faulting from multiple tectonic events that have affected the region (modified after USDI BLM [2013]). The project area is bounded on the west by Mesozoic plutonic rocks of the Sierra Nevada Batholith (California State Map) that have been partially overlain by Cenozoic volcanic rocks.

Zones of crustal weakness are important targets for precious metal exploration because they represent major conduits for the hydrothermal activity associated with ore deposit formation. The local and regional stresses occurring in these zones are also important in providing the mechanical ground preparation required for ore deposit emplacement. As a result, the Walker Lane structural zone is associated with the occurrence of several precious metals deposits that have been discovered within the project area as evidenced by the past establishment of numerous historic mining districts.

Mineral Potential of the Project Area

Mineral potential is described in detail in an extensive report completed for the BLM Carson City District which covers most of the eastern half of the study area. In summary, the report described the mineral potential for geothermal to be high while oil and gas is low. Solid leasable mineral potential is low while saleable minerals are moderate to high depending on the commodity. Locatable minerals have an important role in the past and will continue to have some role in the future with at least moderate potential (USDI BLM 2013). Mineral potential of the western half on of the project area Forest Service lands is much the same as the eastern half due to the similar geology and the basin and range setting. Saleable sand and gravel deposits are much less common on the Forest Service lands due to the steep terrain.

Although, geothermal and locatable minerals have a high potential as on the BLM administered lands (California Gold Map, Geothermal Potential Map).

The Forest Service and BLM Minerals Programs

On Federal lands, mineral resources are governed by the General Mining Law of 1872, as amended; those portions of the FLPMA that affect the General Mining Law; Mineral Leasing Acts of 1920, as amended; the Mineral Material Acts of 1947, as amended; the Surface Resources Act of 1955 and The Mining and Minerals Policy Act of 1970. Oil and gas leasing is guided by the Energy Policy Act of 2005. Geothermal leasing is guided by the Geothermal Steam Act of 1970 (30 USC 1004), as amended; by the Energy Policy Act of 2005, and other laws, regulations, orders and policies.

The Forest Service manages oil and gas operations on National Forest System lands under 36 CFR 228 subpart E. Mineral leasing operations are guided by Forest Service Manual 2820 and mineral prospecting, including geophysical activities is guided by Forest Service Manual 2860. Locatable minerals and surface management regulations fall under 36 CFR 228 subpart A and Forest Service Manual 2810. Mineral materials are regulated under 36 CFR 228 subpart C and Forest Service Manual 2850 (USDA Forest Service 2012).

Proposed actions on either Forest Service- or BLM-administered lands can be divided into discretionary and nondiscretionary actions. Locatable exploration and mining are nondiscretionary and a reasonable plan of operations must be processed and approved if the mineral estate is open to entry, whereas all other actions are discretionary and the land management agency can choose to permit as proposed, modify, or disallow the proposal.

Discretionary Actions

Mineral Materials/Saleable Minerals: Mineral materials are common variety minerals are commonly referred to as sand and gravel, aggregates, or mineral materials, and consist of common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite as described under the Materials Act of 1947 and the Surface Resources Act of 1955. Salable minerals on both BLM- and Forest Service-administered lands are made available by sale contracts or free use permits.

Most of the current mineral material products in the study area are small sand and gravel sales, free use permits and Nevada Department of Transportation (NDOT) gravel material sites (BLM 2013 b). NDOT has about 86 gravel pits for 7,300 acres in the study area of which 11 pits are in habitat for 1,850 acres. The Forest Service currently has no operating saleable sites in the project area and only occasionally uses mineral material sites for road maintenance purposes.

The BLM manages several operating plans for clay, cinder, perlite, and several large competitive gravel-sale pits outside the study area (USDI BLM 2013).

Leasable Minerals: Leasable minerals are subdivided into two categories, solid leasable and fluid leasable. The BLM holds authority over leasable activities. Solid leasables include phosphate, potassium, coal, oil shale, sulfur, sodium, and nitrate. Fluid leasables include oil and gas and geothermal resources. The BLM grants access and rights to leasable resources through a formalized leasing process on both Forest Service- and BLM-administered lands. A leasing analysis and corresponding decision is prepared in order to make determinations as to the availability of certain lands to be leased. A Federal lease grants “the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the particular resources in the lands described within the lease form” (USDA Forest Service 2012).

Solid Leasable: There are currently no authorized leases for these commodities within the study area. However, there is one exploration application received in 2012 for potassium from alunite on Forest Service lands within the study area. The BLM and Forest Service processed portions of the application, although there has been no response from the applicant since 2012.

Applicants make requests to the BLM on both Forest Service and BLM lands to prospect for solid leasable minerals. If the prospecting area is on Forest Service lands then the BLM requests the Forest Service as a cooperating agency on the environmental analysis to recommend conditions of approval and stipulations to be attached to the lease. BLM may modify the Forest Service's recommendations or choose not to lease the land depending on the analysis.

Coal even though it is a solid leasable commodity is leased under specific guidance for coal only. If the Forest Service decides that the area is not open to leasing then the BLM is not allowed to lease the area.

Fluid Leasable:

Oil and Gas. The BLM has completed a leasing decision for oil and gas for the BLM lands in the study area, whereas the Forest Service lands have no leasing decision. There are no authorized oil and gas leases in the study area and there is low potential for discoveries (USDI BLM 2013). Therefore, there is also no reasonable foreseeable development scenario for the study area.

Geothermal. Geothermal energy has been the bulk of the leasable exploration and development in the study area. Leasing decisions have been made on both the BLM lands (USDI BLM 2008) and the Bridgeport District portion of the Forest Service lands (USDA Forest Service 2012). Most of the leases have been offered competitively for electrical generation that will then be transported by power lines to municipalities in Nevada and California if ever developed. There are approximately 143,300 acres of geothermal leases within the study area. There are currently three geothermal leases inside the habitat consisting of approximately 7,614 acres. This equates to about 5 percent of the current leased acres are within the habitat.

There are no existing power plants in the modified study area, although within a short distance to the north and east of the study area there are several power plants. The State of Nevada contains 563 leases for 1,187,190 acres and 26 producing leases for geothermal electrical energy production in 2012. There are also four geothermal projects on BLM lands in the study area: Alum, Clayton Valley, Hawthorne, and Silver Peak (Johnson 2012) (Geothermal maps). Important geothermal resource areas on Forest Service lands include North and South Aurora and Wilson Hot Springs.

Reasonable Foreseeable Development Scenario

Reasonable foreseeable development scenarios (RFDs) have been created for the BLM lands (USDI BLM 2006, 2008, 2013) and for the Bridgeport District of the Forest Service lands (USDI BLM 2008; USDA Forest Service 2012, USDA Forest Service 2012b).

Previous RFDs in the BLM (2008), and Forest Service 2012a and 2012b, have likely overestimated the production of electricity by 2015. The Carson City District BLM Mineral Potential Report (USDI BLM 2013) completed in 2013 is the most recent RFD and is 1.8 million acres larger that the study area. Therefore, the RFD appropriate for this study area was reduced to three 15 megawatt power plants. The Carson City BLM RFD is largely reiterated here for convenience. This RFD envisions that over the next 20 years, exploration drilling would occur on all geothermal leases, some of which lead to more detailed exploration drilling, and a few of which lead to the discovery of geothermal resources capable of developing three 15 megawatt geothermal power plants for a total of 45 megawatts. The 15 megawatt power plant is used as a typical size to estimate the amount of disturbance that could be involved for the

RFD. These calculations are meant to be used as an indicator of the impacts involved, not as a cap or bound on the size of any geothermal power plant development. The discussion below looks at the potential surface disturbances from this scenario, and then the other potential environmental impacts from development of the resources.

Surface Disturbance

Exploration: During the exploration stage, surface disturbance is minimal with few adverse impacts until the decision is made to drill one or more exploration wells. An exploration drilling impact evaluation is shown in table 3-19, which lists the maximum degree of anticipated surface disturbance expected during this phase.

Table 3-19. Geothermal exploration drilling disturbance

Activity	Acres of Disturbance (Acres)	Unit per Lease	Total Acres Disturbed per Lease	Total Acres Disturbed with Two Leases Explored per Year
Exploration Roads	1 acre/mile	3 0.5-mile roads	1.5	3
Shallow Temperature Gradient or Exploration Flow Test Well (several 100 to several 1000 feet deep)	1 acre/drill site	3 drill sites	3.0	6
Total			4.5	9

Assuming that as many as three temperature gradient or exploration flow test wells would be drilled on each lease, this would disturb as much as 3 acres (1 acre per drill site). Three new access roads, each 0.5 mile in length, would disturb an additional 1.5 acres. Therefore, the total disturbance per lease is approximately 4.5 acres (table 3-20). Exploration drilling surface impacts are transitory in that unsuccessful exploration programs are abandoned and the surface impacts are reclaimed usually within a 2-year period. Components from successful exploration programs can be used through the development process, frequently using the existing surface disturbances for some of the development activities. There may be numerous leases on which exploration drilling takes place; however, it is unlikely that they would not all be drilled at the same time. If we assume that over the next 20 years 40 geothermal leases are drilled, a total of 120 exploration holes would be drilled. If we assume that these holes would be drilled evenly over the entire 20 year period, six holes would be drilled per year. If we further assume that unsuccessful exploration holes are reclaimed within a 2-year period, then there would never be more than 12 drill pads disturbed at any one time. Table 3-20 summarizes anticipated individual and cumulative impacts for the exploration drilling.

Development: The following describes the construction activities required to develop five 15 to 24 megawatt electrical power generating plants, associated wells, pipelines, roads, and electrical transmission lines. The number of wells includes those used for production, standby, and reinjection. Since development is likely to occur in about 5 megawatt increments over a period of several years, the degree of surface disturbance at any given time is less than that presented in table 3-20. Mitigation and enhancement would have occurred in some portions of the lease before additional portions of the lease are developed.

Table 3-20. Surface disturbance from construction of a geothermal power facility

Facility or Feature	Facilities or Features/Plant	Disturbed Acres per Feature or Facility	Disturbed Acres for Overall Power Plant Infrastructure	Total Disturbed Acres for 5 Power Plant Facilities
Power Plant	1	30	30	150
Wells	6	5	30	150
Cooling Pond	1	5	5	25
Pipelines	3	5	15	75
Access Road (spurs)	3	7	21	105
Mainline Road	1	10	10	50
Transmission Line	1	10	10	50
Total			121	605

Schedule: The various time frames for a typical geothermal project are estimated as follows:

Exploration: 1 to 5 years

Development: 2 to 10 years

Production: 10 to 30 years (depending on construction time)

Up to six production or injection wells could be drilled on each lease. Each well pad would disturb approximately 5 acres, and a mainline road would disturb approximately 10 acres. Each of three pipelines would disturb approximately 5 acres and each of five access roads would disturb approximately 7 acres. A power plant would occupy approximately 30 acres, a disposal pond would disturb approximately 5 acres, and a 25-mile transmission line would disturb approximately 10 acres. Total surface disturbance for each plant for this phase of operation would total approximately 121 acres (table 3-20). Again, not all power plants would be constructed at the same time, and construction would likely be staged in 5 megawatt increments. Until actual geothermal exploration and development begin, it is difficult to quantify the resource potential and possible future intensified production measures necessary to develop the resources (USDI BLM 2013).

Non-discretionary Actions

Locatable. Locatable mineral commodities produced in the project area include gold, silver, copper, iron, tungsten, silica, lead, and zinc (USDI BLM 2012b). Nevada is a major producer of precious metals and is currently ranked as the third or fourth largest gold producing region in the world in terms of its annual production. In 2010 Nevada produced 5.3 million ounces of gold by far out-producing any other state, and it also produced 7.3 million ounces of silver and over 127 million pounds of copper (Johnson 2012). Past exploration and production of the following commodities have also occurred in or near the study area: antimony, arsenic, beryllium, graphite, magnesium, manganese, mercury, molybdenum, nickel, cobalt, thorium, rare earth elements, titanium, uranium, vanadium, barite, borates, limestone, diatomite, fluorspar, gypsum, kyanite/aluminous refractories, perlite, phyrophylite, and turquoise (USDI BLM 2013).

Three BLM active plans of operation fall within the project area of the Carson City District related to precious metals exploration. The project names are Candelaria (600 acres), Buckskin Mine (18 acres), and Bovie Lew (10 acres). One copper plan of operations is also partly in the planning area called the MacArthur Pit (43 acres) (USDI BLM 2013).

The Candelaria Mine historically produced 68 million ounces of silver and has been reclaimed since 1998. Silver Standard is actively exploring this site (Silver Standard 2014). At the Buckskin Mine 199,000 metric tons were shipped for processing in 2008 (Infomine 2014). The Bovie Lew Mine was a historic placer mine (findthedata.org 2014).

The Battle Mountain District also has three mines within the study area including the Mineral Ridge Mine, Silver Peak Lithium Mine, and Basalt Diatomite Mine. The Mineral Ridge Gold Mine is currently an open-pit heap leach facility located in the southern portion of the study area and would produce 30,000 ounces of gold /year for the next 3 years (Scorpio Gold 2014). In 2011 the Mineral Ridge Mine had 46 employees and produced 13,951 ounces of gold and 7,907 ounces of silver (NBMG 2012).

The Silver Peak Lithium Mine on BLM and private lands produces up to 6,000 tons per year of lithium carbonate equivalent from brines (NDEP 2012). About one-third of the project falls within the study area. Silver Peak lies near a dry lake bed that is rich in lithium and other minerals and is currently the only operating source of lithium in the United States. The mine is being expanded to double the capacity of its lithium carbonate production. The project is funded in part by a $28.4 million grant from the U.S. Department of Energy to expand and upgrade the production of lithium materials for advanced transportation batteries (Wikipedia 2014).

One diatomite mine is in the study area called the Basalt Mine and operated by Grefco Minerals Inc., (Visher and Conyer 2012).

Twenty-five plans of operation are active on the Forest Service in Nevada (USDA Forest Service 2012) and five in California. The Borealis Mine located on Forest Service administered lands restarted gold production in 2012 from reworking previous heap leach ore. Gold production in the first quarter of 2013 was approximately 3,300 ounces (Gryphon 2013). The Esmeralda Mine is a historic gold producer from underground and open pits. Currently only the mill is processing ores from other parts of the state and no mining is taking place on site. The Pine Grove Project is an advanced stage gold resource largely on private land. The company plans to place the future mine facilities, heap leach and waste rock on Forest Service administered lands (personal communication, Bridgeport District Geologist). Pine Grove has a measured and indicated resource of 203,900 ounces of gold (Lincoln Gold webpage). The Forest Service is processing a proposal to drill condemnation holes, monitor wells, and soil tests at this site. The Lucky Boy Silica mine is producing silica from a unique clean quartz site for Hardie Board used to make house siding and backer board. The mine is currently on private land and abuts Forest Service administered land.

Active mining claims in the project area numbered about 17,000. Each claim is a maximum of about 20 acres. So the maximum area held under active locatable mining claims is approximately 340,000 acres or 530 square miles.

Environmental Consequences

Methodology

The proposed action limitations and mitigations impacts on exploration, development and mining or geothermal energy production will be analyzed by comparing the number of minerals projects, mining claims, leases and so forth to the number of those within the study area. This will help to indicate the intensity of the impact. The types of impacts the proposed action will have on the minerals program will also be examined by explaining the usual types of limitations and mitigations that may be applied. This discussion will help identify the context and magnitude.

Incomplete and Unavailable Information

There is generally adequate information available on geothermal drilling projects, active mines, and other minerals projects that may impact this analysis. There is little information on how much gravel is removed annually from the gravel pits.

Spatial and Temporal Context for Effects Analysis

The effects analysis and cumulative impacts are discussed for the area within the study boundary. The no-action alternative will describe the current condition of the minerals activities which include current exploration, development, and mining or geothermal energy production in the study area. The proposed action will be analyzed by evaluating the implementing objectives, guidelines, and standards on the minerals projects and potential future impacts on the minerals program.

Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis

Past Actions: Vein silver and gold deposits were the most important discoveries in the 1850s to the early 1900s as they accounted for almost all the precious metal production. In the early 1970s, when the price of gold was allowed to react to market demand the price fluctuated significantly and investors began to encourage expansion of gold exploration and mining again in Nevada. Since the early 1900s the emphasis of exploration shifted to finding and developing large, low-grade deposits, which became economical using cyanide heap leach methods for gold and silver recovery. Exploitation of these large low grade precious metal deposits peaked in the study area in the mid-1990s (USDI BLM 2013b).

In the study area, nonmetallic minerals activity began in the early 1860s with the exploitation of salt deposits from playa lakes at various locations in Churchill and Mineral counties (USDI BLM 2013b). Sand and gravel pits have been in existence for some time as there are abundant deposits near particular elevations largely on BLM-administered lands associated with ancient lake deposits. No past actions are known that limit the availability of mineral resources.

Present Actions: Nonmetallic (industrial) salable minerals produced in the study area and surrounding area include salt, borates, gypsum, fluorite, clay, zeolite, limestone, and diatomite (USDI BLM 2013b). Most of the saleable products are from numerous small pits excavating sand and gravel for road maintenance and construction. There are no leases for oil and gas activity or solid leasable minerals in the study area.

There are various exploration notices and plans of operation for locatable minerals in the study area. Several small operating mines include the Basalt (diatomite) Mine, Silver Peak Lithium Mine on BLM lands and the Borealis Gold Mine, and Esmeralda Mine on Forest Service lands.

Active geothermal projects include the Aurora and Wilson Hot Springs on Forest Service lands and the Silver Peak, Alum and Clayton Valley projects on BLM lands. The Humboldt-Toiyabe National Forest Geothermal Leasing EIS was completed in 2012 and the Forest Service is processing some leasing requests for the BLM to consider leasing.

Reasonably Foreseeable Future Actions: The Nevada Division of Environmental Protection (NDEP) has decided in June 2013 to grant surface disturbance for a reclamation permit consisting of 362.7 acres of private land and 4.9 acres of public land for the Pumpkin Hollow Copper Project near Yerington, Nevada (NDEP 2013).

Also, the Senate Committee on Energy and Natural Resources passed the Lyon County Economic Development and Conservation Act (S. 159 or "Land Bill") on June 18, 2013. This bill was introduced on January 28, 2013, and would in summary:

The Bill directs the Secretary of the Interior to convey to the city of Yerington, Nevada, identified Federal land in Lyon and Mineral counties. Designates identified Federal land in Nevada managed by the Forest Service, to be known as the Wovoka Wilderness, as wilderness and as a component of the National Wilderness Preservation System and would withdraw the mineral estate from certain surrounding National Forest System Lands (Heller and Reid 2013).

The Land Bill would convey approximately 10,400 acres of land to the City of Yerington, placing the entire Pumpkin Hollow Project under local and Nevada State oversight. Combined with Nevada Copper's 1,500 acres of private land, the bill would provide approximately 11,900 acres total for mine development; power, water and road infrastructure that in turn would provide the City with lands for ancillary commercial and industrial development (Bonifacio 2013).

Preliminary feasibility studies of both open pit and underground mining for Pumpkin Hollow have been prepared and indicate a current mineable measured and indicated reserve of 27.6 million tons grading 1.49 percent copper with significant amounts of gold and silver (Bryan et al. 2012).

The Forest Service is processing a plan of operations at the Pine Grove Project that would serve as monitor wells, condemnation holes, and soil test holes in preparation for submitting a mine plan to the NDEP and Forest Service. The pits would be hosted on private land while much of the heap-leach facilities and waste rock repositories would likely be placed on Forest Service-administered lands. The gold ore has a measured and indicated resource of 203,900 ounces (Lincoln gold webpage 2014).

Alternative A – No Action

Direct Effects. There are no direct effects to mineral activities under the no-action alternative. Management of mineral resources would continue under the current Forest Plan and RMPs.

Indirect Effects. Under the no-action alternative, mineral activities would proceed much as they are currently. The BLM would continue to use the Instruction Memorandum NV-2013-009 for Bi-State Sage Grouse for Minerals Activities (USDI BLM 2012c) until a plan amendment can be completed. The Forest Service would put more attention on the environmental analysis of sage grouse for each proposed action since the USFWS will make a decision on the proposed listing of the bird and its critical habitat in the near future. The Forest Service would not have the goals, objectives, guidelines, and standards to direct the future environmental analysis.

Fluid Minerals–Geothermal. Discretionary actions on BLM land for proposed actions and past authorized actions operators would be asked to minimize or eliminate impacts to Bi-state DPS or the habitat. If analysis indicates more than a minor impact to Bi-state DPS then the BLM determines, in coordination with the respective state wildlife agency, that the action and mitigation measures would cumulatively maintain or enhance Bi-state DPS habitat, the proposed action authorization decision must be forwarded to the Bi-State DPS technical Working Team for their review. If this group is unable to agree on the appropriate mitigation for the proposed authorization, then the proposed decision must be forwarded to the EOC, when appropriate, for its review. If the EOC is unable to agree on the appropriate mitigation for the proposed authorization, the EOC will coordinate with and brief the BLM State Director for a final decision in absence of consensus. This process will go on until a land use plan amendment is completed (USDI BLM 2012c).

In addition to considering opportunities for onsite mitigation, the BLM will, to the extent possible, cooperate with project proponents to develop and consider implementing appropriate offsite mitigation that the BLM, coordinating with the respective state wildlife agency, determines would avoid or minimize habitat and population-level effects (USDI BLM 2012c).

For geothermal proposals within the Bridgeport District of the Forest Service would use the direction in the Humboldt-Toiyabe Geothermal Leasing EIS and Decision (USDA Forest Service 2012) or the Aurora Geothermal EA Supplement and Decision (USDA Forest Service 2012 b) depending on location to guide leasing stipulations, conditions of approval, and final analysis.

Fluid Minerals–Oil & Gas. The BLM's authority for approving oil and gas exploration is listed in 43 CFR 3151. The BLM's approval of oil and gas activities is subject to conditions to prevent undue or unnecessary degradation of public lands and must be consistent with the corresponding RMP and the districtwide EA for oil and gas leasing. The Forest Service has not completed an oil and gas leasing decision for any part of the study area. If a leasing decision was completed by the Forest Service then the BLM could offer areas open to leasing in a competitive bid. Currently there are no authorized oil and gas leases in the study area.

Solid Leasable Minerals. Coal is treated as a leasable mineral whether it is on public domain or acquired lands, and all coal leases are sold by competitive, sealed bid. Royalties must be paid on all producing leases. The regulations governing coal management are found in the 43 CFR 3400.

The leasable solid minerals other than coal are generally minerals that are found in bedded deposits, which means that they lie in seams or beds which have lateral extent. The main types of leasable minerals are: chlorides, sulfates, carbonates, borates, silicates, and nitrates of potassium (potash) or sodium and related products; sulfur; phosphate and its associated and related minerals; asphalt; and gilsonite. These minerals are leasable on both public domain and acquired lands. If deposits are known to exist and to be economically workable, leases are sold competitively. If deposits are not known, a prospecting permit can be obtained on a first-come, first-served basis, which allows the permittee to explore for the mineral. If the mineral is then found in commercial quantities, a preference right lease can be issued to the permittee. Royalties must be paid on all producing leases. The regulations governing these minerals are found in the 43 CFR 3500 regulations (BLM website).

Leasable minerals located on Forest Service lands are managed by the BLM. The Forest Service is a cooperating agency on the environmental analysis and gives the BLM surface protective measures they would like incorporated into the lease. However, the BLM is not obligated to incorporate those measures.

In 2012 the BLM received a request to prospect for alunite to potentially produce potassium that was located in the Bridgeport District of the Forest Service. After initial processing of the application the BLM has had no contact from the applicant. No other leasable mineral applications have been received by the BLM is recent years.

Mineral Materials (Saleable). Currently there are about 90 small sand and gravel pits largely on BLM lands in the project area that are used mostly for road maintenance. About 11 of those pits are within Bi-state DPS habitat. Most of these pits are Nevada Department of Transportation pits managed under rights-of-way granted to the Federal Highway Administration.

Nondiscretionary Actions: The BLM would continue to request that current holders of notices and plans of operation modify their operations to avoid or minimize adverse effects on Bi-state DPS and its habitat. Operators must be informed in the request that compliance is not mandatory. New notices and plans of operation would be required to include measures to avoid or minimize adverse effects to Bi-state DPS populations and its habitat. The BLM would continue to ensure that new notices and plans of operation comply with the requirements in 43 CFR 3809 to prevent unnecessary or undue degradation (USDI BLM 2012c).

Cumulative Effects

The Pumpkin Hollow copper deposit discussed in reasonably foreseeable future actions is not in Bi-state DPS habitat and is about 10 to 15 miles from the nearest habitat and not likely to have any direct or indirect impact on Bi-state DPS. The Economic Development and Conservation Act (S. 159) could be passed at some future date and made law which in its current form would designate a wilderness area and certain other lands withdrawn from mineral entry which would benefit the Bi-state DPS by not allowing most minerals activities in the area of the wilderness and withdrawal.

There are no effects from the no-action alternative on the management of mineral resources there would be cumulative effects for the no-action alternative.

Alternative B – Proposed Action

Standards and guidelines in the proposed action would include site-specific analysis of proposed and existing activities in the amendment area. Specific standards and guidelines affecting recreation and lands special uses include the following.

Discretionary Actions

Direct/Indirect Effects. The impacts of implementing the proposed action on the discretionary minerals actions would likely include timing limitations, such as seasonal use restrictions on operations or surface disturbing activities, daily timing limitations, processing placement alternative analysis, mitigating some proposed actions due to the impact on habitat, meeting specific revegetation establishment conditions and diversity, and off-site mitigation to offset the surface disturbance of habitat. Other mitigation measures might include underground placement of pipelines and powerlines inside habitat, color or height requirements for certain structures, and so on. These requirements would have a certain negative financial impact on the proponent, but will vary greatly depending on the specific project.

Fluid Minerals

Direct/Indirect Effects. Guidelines and standards for fluid mineral actions encompass the general list for all projects as well as the “Minerals General” and “Fluid Minerals” in table 2-4.

Geothermal leasing decisions have been made for all the study area except the Carson City Ranger District of the Forest Service. Oil and gas leasing decisions have been made for most of the BLM lands only. Current leases have stipulations and conditions of approval assigned to the lease by the BLM. The standards and guidelines will impact future NEPA as projects are proposed on the lease, but will not change the existing lease stipulations and conditions of approval. However, future leases will be assigned stipulations and conditions of approval that are consistent with the standards and guidelines. Fluid mineral infrastructure are approved on the lease through the operating plan, but off the lease the powerlines, pipelines, road use and so forth are approved under special use permits on Forest Service lands and rights-of-way on BLM land. Impacts due to needing special use permits and rights-of-way can be found in the land use section in the EIS.

Existing and future fluid mineral leases could potentially be affected by implementation of standards and guidelines. Future project specific analysis could require modification of operating plans to meet seasonal and buffer restrictions for example. New leases, APDs (applications for permit to drill), utilization plans and so forth could still be authorized, but would be subject to standardized stipulations relating to the standards and guidelines.

In some cases, if new proposed activities were determined to have an adverse effect on Bi-state DPS and they could not be sufficiently mitigated, operating plans would have to be modified. In some cases, the lease holder may find the mitigations too costly and may withdraw their application and drop their lease.

Restrictions on facility placement, limited access, increased administrative costs, and installation of facilities in less-than-optimum sites could all result if projects were proposed in habitat.

Oil and gas drilling and well production has some flexibility since they can use directional drilling to drill up to 5 miles away from the collar location and drill numerous holes of differing directions from one platform (Wikipedia 2014). One guideline allows one area of disturbance for every 640 acres (1 square mile) which should work well for oil and gas exploration. However, geothermal drilling is not nearly as versatile due largely to the cost/benefit of directional drilling and the structural geologic setting that is important to be located within. Geothermal power production must have multiple drill holes precisely located so they can draw hot geothermal water from a specified region, and after using some of the heat, reinject the water in a different area of the circulating hydrothermal subsurface cell.

Opportunities for economic growth may be impacted by proponents not proceeding with acquiring leases and operating plans because of mitigations placed on these leases and subsequent operating plans. The amount of impact would depend on the type and expense of the mitigation. If significant oil- and gas-bearing horizons were suspected in the study area, impacts to future oil and gas exploration and production would be minor since they would likely choose to drill from outside the habitat or locally inside the habitat. Some geologic units would likely be inaccessible for oil and gas production since the cost and technology would not allow the area to be reached from outside the habitat. However, geothermal development would be impacted more significantly. The structural geological setting that must be present, along with the right geothermal conditions cannot be moved out of the habitat and the drilling and production facility can only be modified to a certain degree to attempt to meet the standards and guidelines. A project proposed in these areas may be subject to additional requirements, such as resource surveys and reports, construction and reclamation engineering, long-term monitoring, special design features, special siting requirements, timing limitations, and rerouting. Such requirements could restrict project location or they could delay project implementation.

Access could also be affected through implementation of this alternative. The use of existing roads and construction of new roads would not be prohibited through the proposed action; however, future site-specific NEPA could modify or change access to Forest Service or BLM lands if the proposed roads did not fall under the types allowed in the guideline.

It is likely that most geothermal companies would develop outside the habitat due to the limitations created by the standards and guidelines.

Solid Leasable Minerals

Direct/Indirect Effects. Solid leasable minerals under this alternative have guidelines that recommend that exploration, facilities, and mining should not be located in habitat. However, the underground mining and exploration below the habitat could be proposed and potentially approved. Since solid leasable minerals rarely are found in economic quantities within the study area, impacts are expected to be minor.

Mineral Materials (Saleable)

Direct/Indirect Effects. Existing mineral material pits would be allowed to be developed, but would have numerous requirements added to new sales due to the standards and guidelines. Site-specific NEPA on new permits could add seasonal timing limitations, offset mitigation, hours of operation and other requirements. Crushing and screening operations may be impacted by the height of infrastructure requirement and may not be allowed at some sites. Proposals for exploration and new pits would not be allowed.

Mineral materials such as sand and gravel will likely continue to have the same demand as present or increase slightly due to increased home development. However, there appear to be enough existing gravel pits or exploration potential outside of habitat to meet the need, but would have an increase in cost to haul the material the additional distance.

Nondiscretionary Actions (Locatable Minerals)

Direct/Indirect Effects. There are approximately 17,000 active mining claims in the study area. Nondiscretionary actions from locatable exploration or mining proposals would have potentially the same impacts as discretionary mineral actions except that a reasonable plan of operations cannot be denied, but would have practicable mitigation measures to minimize or eliminate the impacts on sage grouse and the habitat. Some mining proposals might also have some portions of the proposed surface disturbance that cannot be revegetated, such as pit high-walls. Off-site mitigation can be requested for these actions but the operator is not obligated to comply.

The future of various commodities prices is expected to rise and fall similar to the past and thus the exploration and development of these commodities will do the same. Since the study area has many different types of mineral potential. The area will likely see continued exploration for more than one commodity.

Since this proposed action does not withdraw any Federal lands from mineral entry, mining claims will likely continue to be located but may have a somewhat reduced impact to Bi-state DPS due to the increased time to process a plan of operation and increased cost to produce a product. An increased time to process a plan of operations has a definable negative impact on minerals actions because the ability to raise capital to explore or develop is based on a historically fluctuating commodity price, no matter what the commodity. The longer it takes to approve a plan of operations the more financial impact to the operator and the less likely that they will be able to implement their project. This is evident from the historic plan of operations processed on the Humboldt-Toiyabe National Forest. The Forest Service is legally mandated to process locatable plans of operation in a timely manner.

The cash costs as well as the capitol costs to explore, develop, mine, and produce mineral products will likely go up by some unknown amount and will vary depending on the location and mitigation applied to an individual project. These increased costs will negatively impact the number of jobs available in the minerals sector.

Cumulative Effects

There are no cumulative effects from past or present minerals actions. There are no present or future actions that when combined with the proposed amendment would incrementally alter how mineral resources are managed in the amendment area.

Response to Threats

This alternative would allow current gravel pits to be used, but would not allow new deposits to be explored or mined. Current pits could expand, but would have no net loss of habitat mitigation along with timing limitations and specific reclamation requirements. Solid leasable mineral leases would have a no-surface-occupancy stipulation which would only allow occasional driving on existing roads and low impact geophysical surveys. All other activities would not be allowed, so there would be virtually no impact to the habitat or Bi-state DPS. Locatable minerals would be allowed to continue to explore or mine, but with timing limitations, BMPs, and sufficient mitigations to eliminate or minimize impacts to Bi-state DPS and the habitat.

Summary of Effects

While these standards and guidelines with only have minor impacts on oil and gas exploration and production, they would have a much greater impact on geothermal exploration and production. Consequently most geothermal exploration would likely take place outside of habitat. Solid leasable minerals would not be expected to be permitted in habitat but existing gravel pits would continue some level of seasonal production most likely. Locatable minerals would experience impacts resulting from site-specific NEPA such as likely seasonal restrictions, delay in processing and other mitigations.

Alternative C

Standards and guidelines in alternative C would include additional restrictions on proposed and existing activities in the amendment area. Specific standards and guidelines affecting minerals include the following. For a complete list of alternatives see table 2-4.

Discretionary Actions

Fluid Minerals

Direct/Indirect Effects. This alternative would only allow new leases granted to have a no-surface-occupancy stipulation. No surface occupancy for this alternative means that the lease holder can only perform casual use activities as defined by the BLM and some types of geophysical surveys that are minimally disturbing of the surface. Use of low grade roads is also limited and no new roads would be created. Also, no drilling or infrastructure could be placed in habitat.

The other guidelines and standards would apply to existing leases recognizing valid existing rights. Impacts to oil and gas exploration and production would be much more costly to accomplish all drilling from outside the habitat. However, some limited geophysical exploration and casual use activities would provide some means to use the habitat areas to help identify targets and deposits outside the habitat with no real impact to the habitat. Since there is only low potential for oil and gas deposits in the study area, the impacts on oil and gas exploration and production are expected to be very minor.

Geothermal exploration and production would, however, be considerably impacted. No surface occupancy coupled with no rights-of-way grants and no transmission lines in habitat would make it difficult to explore and produce electrical power and transmit it to the grid. Although, there would be some potential to put transmission lines outside of habitat and would likely be additional length of transmission lines to get the power to the grid which would cost more. The cost of drilling would be substantial over alternative B, since closed loop systems would be utilized with no reserve pits and noise shields would have to be used.

Solid Leasable Minerals

Direct/Indirect Effects. Similar to alternative B, solid leasable minerals would not be allowed to be prospected with a permit or mined from the surface in habitat. This alternative it appears as a standard verses a guideline in alternative B. The Forest Service is a cooperating agency for solid leasable minerals and the BLM is not required to fulfill the Forest Service request, but would commonly comply with the petition. Nothing in these guidelines or standards would preclude exploration, development, and mining outside habitat or underneath the habitat as long as the infrastructure was outside of habitat. Since the potential for solid leasable minerals is low and past production was very minor in the study area, the impact on solid mineral exploration and mining is expected to be minor.

Mineral Materials (Saleable)

Direct/Indirect Effects. This alternative would not allow new sales or expansion of existing pits. Current sales contracts would be allowed to be completed, but without the potential for renewal. Mineral materials needed for road maintenance and development would have to come from pits outside the habitat. Community pits and free use pits are somewhat uncommon on both BLM and Forest Service lands within the study area. The Forest Service and BLM also use these pits to maintain their system of roads. If the community pit was located within the habitat, another source outside habitat would have to be used or a new one prospected and developed. Road maintenance in these areas is mostly accomplished by the state or county and their costs to maintain these roads would increase according to the haul distance.

Nondiscretionary Actions (Locatable Minerals)

Direct/Indirect Effects. Under this alternative the Forest Service would petition the BLM to withdraw the locatable mineral rights subject to valid existing claims from the habitat area. The BLM would prepare appropriate documents to request withdrawal of the habitat area on Forest Service and BLM lands to be submitted to the Washington Office for approval. Once the withdrawal was completed no new mining claims would be valid. The impacts to locatable mineral exploration and mining would be considerable. Valid existing rights followed by surface use determinations and/or validity exams would be performed on all new proposals for exploration and mining on existing mining claims. The amount of time for the Forest Service to complete those determinations or exams would be significant and likely take years to complete.

There are five active mining operations and many old mining districts in the study area. The potential to find additional mineable ore is most common near new or old existing mines or mining districts. The current mining operations would not likely be impacted by the withdrawal of the mineral rights, but the expansion potential and exploration potential would be substantially impacted and curtailed.

Cumulative Effects

The Forest Service has one proposal for testing the surface for a potential heap leach and waste rock repository of a potential gold mine on private land at the Pine Grove deposit. Depending on the timing of withdrawal and valid existing rights of this project, it could be impacted by this alternative by not allowing the facilities to be placed on Forest Service land within habitat. This proposal is on the edge of the habitat and site-specific surveys would be needed to determine the habitat boundary.

Response to Threats

This alternative would not allow continued mineral material mining or expansion, excepting and recognizing valid existing rights. Mineral materials for construction and road maintenance would have to come from outside the habitat. No leasing would be granted for solid leasable mineral exploration or mining and therefore no impact to Bi-state DPS. The BLM would be petitioned to withdraw the locatable mineral rights from the habitat. If the current administration approved the withdrawal (which takes a minimum of 2 years to process) only valid existing rights from valid existing mining claims prior to withdrawal would have continued exploration or operations. Expansion of operations or new proposals would have to demonstrate valid existing rights and would be subject to timing limitations, BMPs, reclamation requirements, and numerous mitigations to protect the Bi-state DPS and the habitat.

Summary of Effects

Many of the operating mines, existing gravel pits, and exploration projects would continue operating for a while, but new proposals in habitat would be significantly curtailed on both discretionary and nondiscretionary project proposals.

Effects to Fire and Fuels Management

Affected Environment

Fire is an inherent component of ecosystems and historically has had an important role in promoting plant succession and the development of plant community characteristics. Control of fires and other land use practices during the last century has changed plant communities by altering the frequency, size, and severity of wildfires. The Federal Wildland Fire Management Policy was developed by the secretaries of the DOI and the USDA in 1995 in response to dramatic increases in the frequency, size, and catastrophic nature of wildland fires in the U.S. The 2001 review and update of the policy consisted of findings, guiding principles, policy statements, and implementation actions, and replaced the 1995 Federal Wildland Fire Management Policy. Known as the 2001 Federal Wildland Fire Management Policy (USDI et al. 2001), this update "recommends that federal fire management activities and programs are to provide for firefighter and public safety, protect and enhance land management objectives and human welfare, integrate programs and disciplines, require interagency collaboration, emphasize the natural ecological role of fire, and contribute to ecosystem sustainability." The policy provides nine guiding principles fundamental to the success of the Federal wildland fire management program and the implementation of review recommendations.

The Guidance for Implementation of Federal Wildland Fire Management Policy (Forest Service 2009d) is the most recent guiding principle for these documents. These umbrella principles compel each agency to review its policies to ensure compatibility. The management of BLM- and Forest Service-administered lands include the control of wildfires, the use of fire through prescribed burning, or the use of fire through the management of wildfires in order to meet land management goals. Wildland fire management on BLM-administered and Forest Service-administered lands is guided by a fire management plan that considers the three elements mentioned and includes firefighter and public safety and cost effectiveness.

Wildland fires occur from natural causes, such as lightning, or are human caused. Prescribed fire is used for beneficial purposes (such as reducing hazardous fuel accumulation or restoring ecosystem health) in a controlled manner under a specific prescription and planned effort. Wildland fires can be managed for multiple objectives either by a full suppression response or to achieve land management objectives or combinations of both. The response to a wildland fire is based on an evaluation of risks to firefighter and public safety; the circumstances under which the fire has occurred, including weather and fuel conditions; natural and cultural resource management objectives; and resource protection priorities.

Fire is a management tool used to maintain or increase age class diversity within vegetation communities (e.g., big sagebrush/grassland); rejuvenate fire-dependent vegetation communities (e.g., aspen); maintain or increase vegetation productivity, nutrient content, and palatability; and maintain or improve wildlife habitat, rangeland, and watershed condition. Fire is also considered a management tool for disposal of timber slash, seedbed preparation, reduction of hazardous fuel, control of disease or insects, grazing management, thinning, or species manipulation in support of forest management objectives. In sagebrush ecosystems, fire has been identified as one of the primary factors linked to loss of sagebrush-steppe habitat. Wildfire has been increasing the loss of habitat due to an increase in fire frequency. This increase in fire frequency has been facilitated by the incursion of nonnative annual grasses, primarily cheatgrass, into the sagebrush ecosystems (Miller and Eddleman 2000). In areas where cheatgrass invasion has occurred, fuel profiles have changed, resulting in increased surface fire intensities, shorter fire return intervals, and larger fire sizes (Knapp 1996; Epanchin-Niell et al. 2009; Rowland et al. 2010; Baker 2011; Condon et al. 2011). Without sufficient rehabilitation efforts, these larger burned areas are prone to even more cheatgrass invasion.

Fire Regimes

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993). Coarse- scale definitions for natural (historical) fire regimes have been developed by Hardy et al. (2001) and Schmidt et al. (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant over story vegetation. The following table displays the fire regime groups and descriptions for the project area the five regimes include:

I – 0 to 35 year frequency and low (surface fires most common) to mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

II – 0 to 35 year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);

III – 35 to 100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

IV – 35 to 100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);

V – 200+ year frequency and high (stand replacement) severity.

Table 3-21. Fire regimes for the Bi-state DPS project area

Group	Description	Proportion (%) of Project Area
Fire Regime Group I	≤35 Year Fire Return Interval, Low and Mixed Severity	5
Fire Regime Group II	≤35 Year Fire Return Interval, Replacement Severity	<1
Fire Regime Group III	35–200 Year Fire Return Interval, Low and Mixed Severity	33
Fire Regime Group IV	35–200 Year Fire Return Interval, Replacement Severity	24
Fire Regime Group V	>200 Year Fire Return Interval, Any Severity	33
	Other (including sparsely vegetated, barren and water)	~4

Fire Regime Condition Class

Fire Regime Condition Class (FRCC) is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes (FRCC 2011). FRCC uses various parts of a biophysical setting (Bps)[12] by comparing the current conditions to document reference conditions; then gives a rating for each Bps based on various factors including succession conditions, fire frequency,[13] and fire severity.[14] The three condition classes FRCC uses to describe a BPS departure from reference condition are defined in the following table.

[12] Biophysical settings (Bps) are the primary environmental settings used to determine a landscape's natural fire regime and fire regime condition class (Hann and Bunnell 2001; Hann and Strohm 2003.

[13] Fire frequency is defined as the average number of years between fires or the mean fire interval (Baker and Ehle 2001; Hann and Bunnell 2001).

[14] Fire severity is defined as the effects of a fire on the vegetation and forest floor, and is measured in terms of surface and overstory fuel consumption and heat transference to the organic and mineral soil (DeBano et al. 1998).

Table 3-22. Fire regime condition classes

Condition Class	Description
Low departure (<33%) from reference condition is defined as **Condition Class 1**	Vegetation composition, structure, and fuels are similar to those of the natural regime and do not predispose the system to risk of loss of key ecosystem components. Wildland fires are characteristic of the natural fire regime behavior, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are within the natural range of variability.
Moderate departure (33–66%) from reference condition is defined as **Condition Class 2**	Vegetation composition, structure, and fuels are different from those of the natural regime and predispose the system to risk of loss of key ecosystem components. Wildland fires are moderately uncharacteristic compared to the natural fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are outside the natural range of variability.
High departure (>66%) from reference condition is defined as **Condition Class 3**	Vegetation composition, structure, and fuels are very different from the natural regime and predispose the system to high risk of loss of key ecosystem components. Wildland fires are highly uncharacteristic compared to the natural fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are substantially outside the natural range of variability.

National and state BLM fire policy requires current and desired resource conditions related to fire management be described in terms of three condition classes. The FRCC system measures the extent to which vegetation departs from reference conditions (or how the current vegetation differs from a particular reference condition). Departures from reference condition could be a result of changes to key ecosystem components such as vegetation characteristics, fuel composition, fire frequency, fire severity, and pattern, as well as other associated disturbances, such as insects and disease mortality. The classification system is used to categorize existing ecosystem conditions and to determine priority areas for treatment as mandated by national direction (USDI BLM 2013).

An FRCC assessment has been done for the planning area utilizing LANDFIRE National layers. Though there may be inaccuracies in the data inputs for this planning area, the coarse-scale results are helpful to broadly identify current conditions. The FRCC assessment outlines the fire regime group of each setting, and the acres of each condition class. The analysis shows more than half of the project area is classified as highly departed from reference condition. The moderate and high departure rating could be a concern as it is likely these areas will continue to move further from reference condition without management or fire disturbance.

Table 3-23. Current FRCC condition classes in the Bi-state DPS project area

Condition Class	Description	Percent of Project Area
I	Low Vegetation Departure	15
II	Moderate Vegetation Departure	31
III	High Vegetation Departure	48
	Other (including water, urban, barren sparsely vegetated and agricultural lands	6
	Total	100

Vegetation

Pinyon-juniper woodlands and Wyoming big sagebrush ecosystems have undergone major changes in vegetation structure and composition since settlement by European Americans. Woodlands of the Great Basin have rapidly expanded into the sagebrush steppe. This expansion and eventual suppression of the

invaded sagebrush community has resulted in considerable loss in area for these diverse and productive ecosystems. In many locations this has resulted in increased soil erosion and is increasingly resulting in the increase in the size and intensity of wildfire (Tausch et al. 2005). These changes are resulting in dramatic shifts in fire frequency, size and severity.

Effective management of these systems has been hindered by lack of information on: (1) pre-settlement fire regimes and the spatial and temporal changes that have occurred in Intermountain Region woodlands and sagebrush ecosystems since settlement; (2) changes in fuel loads and the consequences for the ecosystem types and conditions that currently exist on the landscape; and (3) the environmental and ecological factors that influence community susceptibility to invasion by nonnative species (Chambers et al. 2005). The most significant, widespread, and persistent threat is the invasion of cheatgrass (*Bromus tectorum*) in disturbed areas. Conifer expansion is the result of a lack of disturbance caused by resource management activities. In some areas of the sagebrush biome, pinyon pine (*Pinus monophylla*) and juniper (*Juniperus* spp.) once existed as open, savannah-like woodlands that were maintained by relatively frequent fires. Since the 1880s, the stand density and distribution of conifer woodlands have increased in many areas. As it expands into sagebrush communities, contiguous sagebrush stands are reduced in size and the diversity of grasses and forbs decreases. Fire suppression policies generally lengthen fire return intervals in conifer dominated habitats allowing for increased cover densities. (USDI BLM 2013)

Fuels Reduction in Pinyon-juniper Woodlands. Pinyon-juniper woodlands were once viewed as being at a minimal wildfire risk, with low tree stand densities and a lack of continuous and dense ground cover. But as certain conditions arose and persisted—an ongoing drought, a regionwide infestation of the pinyon engraver beetle (*Ips confusus*), and a buildup in stand densities and fuel loadings—the potential for more severe wildfires has also increased (Gottfried et al. 2011).

Prescribed fires and fire use strategies will be more effective in controlling western juniper encroachment if they occur in the earlier stages of succession. The combination of young western juniper being more susceptible to fire damage and fuel loads that allow the manager more opportunity to perform a prescribed burn increase the chances of minimizing the encroachment of western juniper into sagebrush grasslands. Throughout the western United States fire seasons are generally lasting longer with uncharacteristically larger and more severe fires. It is anticipated that climate change will further extend fire seasons. Invasive plants are also of concern and have expanded to create extensive areas of fine fuels where fires spread rapidly.

Fire History and Occurrence

Fire has been the major influence on vegetation patterns, composition, structure, function, age and development of both individual stands and the larger landscape (Arno 2000). Agee (1993) added that changing land use patterns and attempts to exclude fire have succeeded in greatly reducing the scope of fire on the landscape.

Since 1940, 114 fires have occurred within the project. Although many early fires had no accompanying written information and therefore were not included in fire occurrence maps, this data does give a glimpse of the fire history in the area. Fires that escaped detection would also not be included. The fire occurrence data was digitized from historical maps and from Kansas City Fire Database (KCFast). The records from KCFast have detailed information including acreage, cost, and physical location.

Table 3-24. Fire history by size class for the Bi-state DPS amendment area

	Size Class (acres)						
Decade	**A <0.2**	**B 0.3–9.9**	**C 10–99**	**D 100–299.9**	**E 300–999.9**	**F 1,000–4999.9**	**G 5000+**
1940–1949				2	2		2
1950–1959			4			1	
1960–1969		1	4	1	1		
1970–1979			2			1	
1980–1989		2	6	3	2	4	1
1990–1999			6	2	2	1	1
2000–2009		7	10	5	14	4	4
2010–2012		3	9	2	1	4	
Total		13	41	15	22	15	8

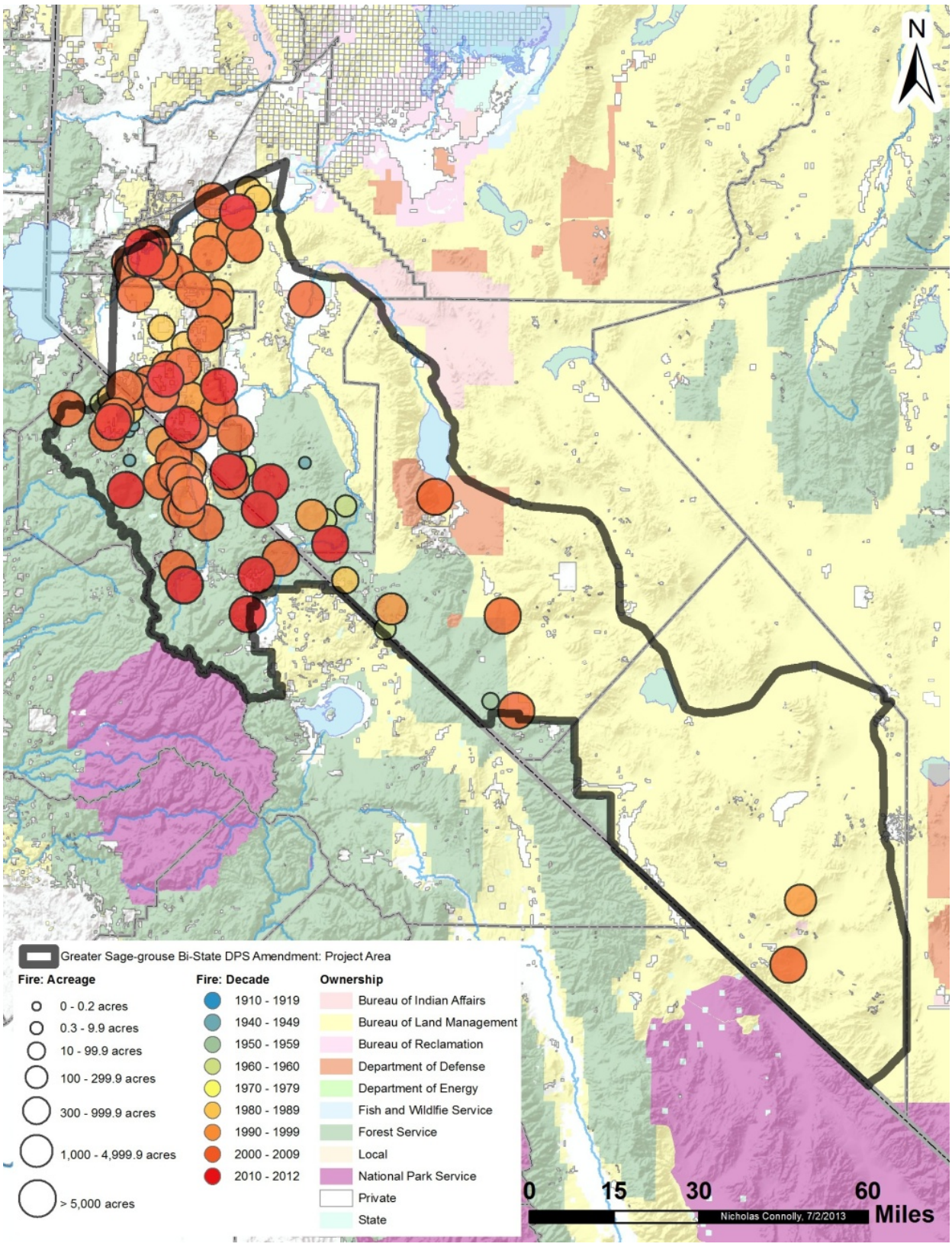

Figure 3-2. Spatial display of fire occurrence in the Bi-state DPS amendment area

Fire Behavior and Fuel Condition

Fire behavior is driven by the combination of fuels, topography, and weather across the landscape. Surface fires spread according to the direction and speed of wind and the steepness of a slope. Surface fuels are an important factor in determining how fast a surface fire will spread and how hot it will burn. Surface fuels consist of needles, leaves, grass, forbs, branches, logs, stumps, shrubs, and small trees. Surface fire factors are also important to the initiation and spread of crown fires.

A fire behavior fuel model represents the fuelbed characteristics necessary to predict surface fire behavior in fire behavior modeling systems. In 2005, Scott and Burgan presented a new set of fire behavior fuel models that expanded on the original 13 created by Anderson in 1982. Advantages of this new set include: increased precision in surface fire intensity prediction and subsequent crown fire behavior prediction, increased ability to simulate changes in fire behavior as a result of fuel treatments, and improved accuracy of fire behavior predictions outside of the severe period of the fire season (Scott and Burgan 2005). Although 21 fuel models are represented in the project area, we will only be discussing the fuel models that compose the majority of the project area or are of greatest concern from a fire behavior standpoint.

Fuel model 101 (GR1) composes 15 percent of the project area and consists of short, sparse grasses indicative of grazed areas. Predicted flame length and spread rate are low with a GR1 fuel model and moisture of extinction is 15 percent. Fuel model 121 (GS1) comprises 11 percent of the amendment area and is consists of shrubs about 1-foot high. The grass component is low as well as the predicted spread rate and flame lengths. Moisture of extinction is 15 percent. Fuel model 122 (GS2) has a grass and shrub component; shrubs are 1- to 3-feet high and the grass load is moderate. Fuel model 122 composes 19 percent of the amendment area. Spread rate is high and flame lengths are moderate. The moisture of extinction is 15 percent. Fuel model 141 (SH1) composes 11 percent or the amendment area. The primary carrier of fire in SH1 is shrubs and shrub litter and a small grass component if present. The predicted spread rate and flame lengths are low and moisture of extinction is 15 percent. Fuel model 142 (SH2) composes approximately 6 percent of the amendment area and consists of a moderate load of woody shrubs and shrub litter. There are generally no grass fuels present. The predicted spread rate is low, flame length is low and moisture of extinction is 15 percent. Fuel model 145 (SH5) comprises approximately 16 percent of the area. Woody shrubs and litter are the primary carriers of fire. It consists of a heavy shrub load with a depth of 4 to 6 feet. Predicted spread rate and flame lengths are very high and moisture of extinction is15 percent. The SH5 fuel model can pose suppression challenges to firefighting forces due to the high spread rate and flame lengths that can be generated with wind speeds of 5 to 10 mph.

Fuel model 183 (TL3) comprises 6 percent of the project area and combines moderate load conifer litter and light load of coarse woody debris. An understory of litter is the main component that will carry fire. This fuel model has a sparse vegetative understory. Rate of spread is very low and flame lengths are low. The moisture of extinction is 20 percent.

Table 3-25. Fire behavior fuel models in the Bi-state DPS amendment Area

Fuel Model #	Fuel Model Code	Description	Proportion (%)
101	GR1	Short, sparse dry climate grass	15
102	GR2	Low load, dry climate grass	<2
104	GR4	Moderate load, dry climate grass	<1
121	GS1	Low load, dry climate grass-shrub	11
122	GS2	Moderate load, dry climate grass-shrub	19
141	SH1	Low load dry climate shrub	11
142	SH2	Moderate load dry climate shrub	6
144	SH4	Low load, humid climate timber-shrub	<1
145	SH5	High load, dry climate shrub	16
147	SH7	Very high load, dry climate shrub	2
161	TU1	Low load dry climate timber-grass-shrub	<2
165	TU5	Very high load, dry climate timber-shrub	1
183	TL3	Moderate load conifer litter	6
189	TL9	Very high load broadleaf litter	1
		All other fuel models	~6
		Total	100

Wildland Urban Interface Fire Hazard Assessments

The counties in the planning area have developed community wildfire protection plans (CWPPs) which identify fire prevention and protection needs and establish priorities for fire mitigation projects in wildland-urban interface areas. In the CWPPs, areas of concern such as wildland-urban interface, are identified and prioritized based on fuel hazards, risk from wildfire, FRCC assessments, infrastructure, and other values such as view-sheds and watersheds. As an outcome of this project, each assessed community was rated extreme, high, moderate or low in terms of its fire hazard. The Healthy Forest Restoration Act (HFRA) facilitates Federal involvement by requiring interagency collaboration, especially when counties have completed CWPPs. The following website contains the risk hazard assessment reports for all counties in Nevada; http://www.livingwithfire.info/fire-hazard-assessments (accessed online June 2013). The California CWPPs are located in the project record.

The study area lies within the Alpine and Mono counties in California, and Douglas, Lyon and Mineral Counties in Nevada. The table below shows the acres classified as wildland-urban interface within each of the counties in the states of California and Nevada. The BLM has noted wildland-urban interface areas have been increasing dramatically throughout the Carson City District Planning Area over the past two decades. Examples of additional wildland-urban interface infrastructure includes: powerlines, pipelines, communication sites, recreation facilities, renewable energy, and military training.

Table 3-26. Wildland-urban interface acres by county for California and Nevada in the Bi-state DPS amendment area

County	Acres within Bi-state DPS Amendment Area
Alpine County	77,130
Mono County	347,045
Total for California	424,174
Douglas	302,980
Lyon	555,578
Mineral	894,355
Esmeralda	816,243
Total for Nevada	2,606,554
Total acres classified as wildland-urban interface within the project area	515,322
Approximate acres of amendment area	3,030,729
Proportion of project area classified as wildland-urban interface	~2%

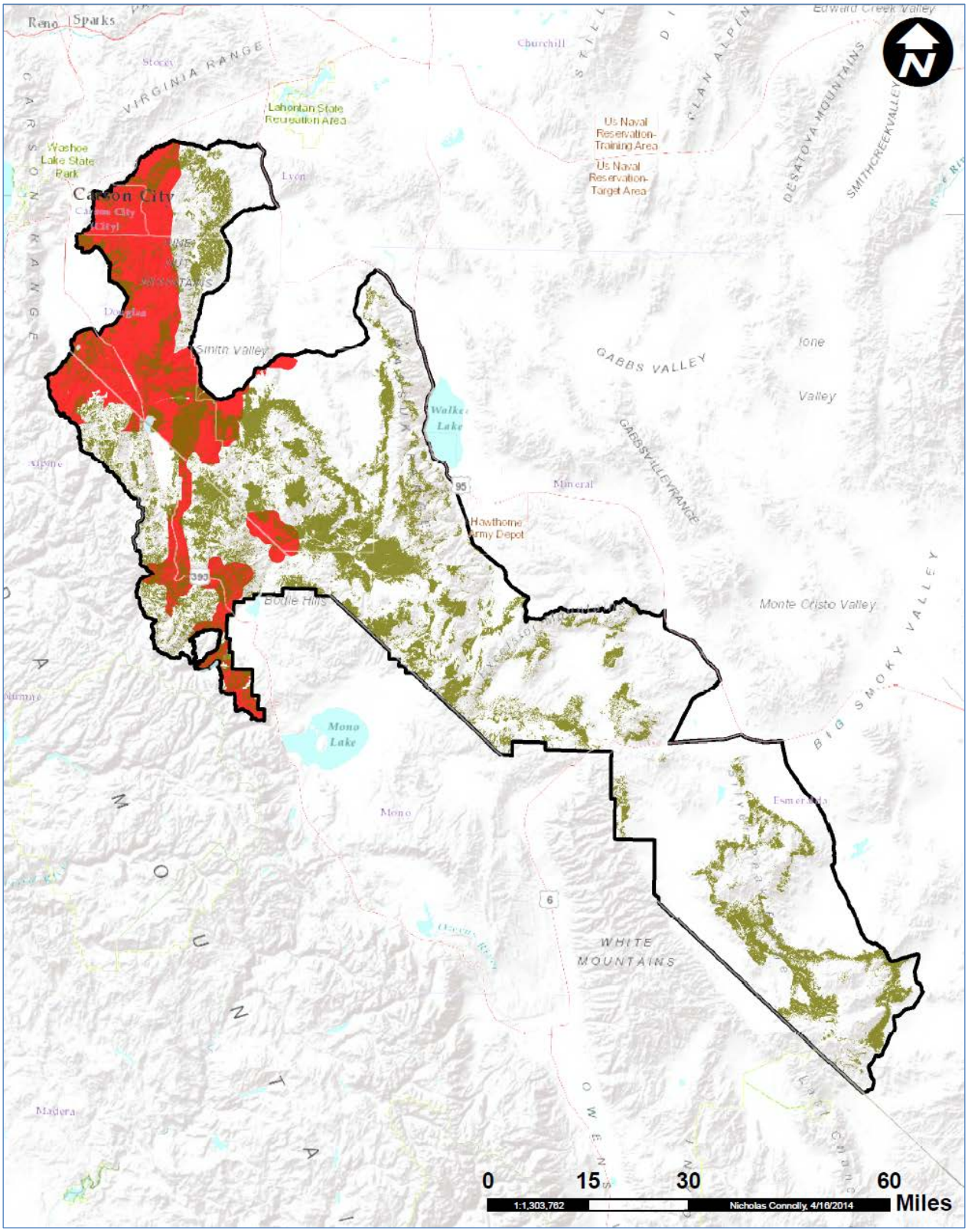

Figure 3-3. Wildland-urban interface areas within the Bi-state DPS amendment area

Alternative A – No Action

Under alternative A, fire and fuels management would continue using existing agency land management plan policy and direction. Due to interim direction, sage grouse habitat would continue to be a priority after life and property for wildfire suppression actions. Under alternative A, fewer management actions and restrictions would be applied specific to promote, protect, and conserve Bi-state DPS habitat. Site-specific environmental analysis would continue to determine stipulations, timing, and location of fuels treatments.

Table 3-27. Indicators for assessing effects to fire and fuels management, alternative A

Indicator	Changes
Alteration in vegetation cover and composition that may result in a positive or negative shift in FRCC.	Fuel treatments would continue to have objectives that would benefit FRCC rating. With fewer restrictions more acres could be treated on an annual basis, therefore positively affecting the number of acres classified as condition class II and III.
Changes in response to and suppression of wildland fire.	Due to interim direction, wildland fire in Bi-state DPS habitat would continue to be a priority for suppression after life and property. However, the protection of Bi-state DPS habitat would change how wildland fire is managed for other resource benefits. Fire suppression costs are likely to be lower under this alternative.
Change in how fuel treatments are designed and implemented to reduce impacts from wildland fire.	The interim direction for protection of Bi-state DPS habitat could change how fuel treatments are planned and implemented in sage grouse habitat. These would be determined through site-specific analysis. Fuel treatment costs are likely to be lower under this alternative. There would be no change in non-habitat areas.

Direct/Indirect Effects of Maintaining Current Management. Management actions under alternative A would place minimal restrictions on fuels management and fire suppression control methods, and therefore would have few impacts on fire management. Fuel treatments will continue to be designed with objectives to modify fire behavior, change the fuel profile, treat fuels in the wildland-urban interface, and in some areas restore native plants and create landscape patterns that benefit Bi-state DPS habitat.

Often, natural and planned fires used for fuels treatments and to meet land management plan objectives lower the risk for an uncharacteristic wildfire that can destroy larger acreages or wildlife habitats. Impacts on fire management would vary across the amendment area based on site-specific objectives for other resource concerns. The current agency LRMPs address fire suppression and fuels management and more detailed fire management plan outline priorities and levels of suppression for resource value protection or other concerns. Recent, interim, direction has specific objectives and management action for suppression and management of fires within sagebrush vegetation communities and sage grouse habitat in accordance with local conservation strategies.

Fuel treatments that reduce vegetation and mimic natural fire effects generally contribute to an upward shift in FRCC, creating landscapes that are more resilient to wildfires. Fuel treatments to improve, create, or re-establish healthy ecological conditions in various vegetation types benefit the fire and fuels program in the long term by shifting FRCC to historic conditions and promoting the most efficient use of fire and fuels resources. Management under alternative A would generally allow for the use of prescribed fire and vegetative treatments where needed. Fire suppression would be prioritized to protect human life, property, and high-value resources as well as manage wildfire for land management objectives. Impacts would vary throughout the amendment area based on site-specific habitat objectives and treatments applied. Minimal restrictions for location and implementation of fuels treatments with alternative A would result in more acres treated on an annual basis therefore positively affecting the number of acres classified as condition class II and III. Wildland fire, prescribed fire and fuel treatments may improve sage grouse habitat by

increasing structural and age diversity. Due to the flexibility in management of prescribed and wildland fires, fire suppression and fuels treatment costs are likely to be lower under alternative A.

Cumulative Effects of Maintaining Current Management. Past wildland fire events have had an effect on the landscape and will continue in the future. Cumulative effects from wildfires and past management activities are discussed in the existing condition section of this report. The existing condition has been influenced by fire suppression and wildfire activity, as well as natural and artificial activities including grazing, mechanical treatments, urban development, climate change, insects and disease and prescribed burning. Maintaining current management combined with future fuels reduction activities would modify fire behavior by contributing to the overall reduction of fuels and modification of the fuel profile, thereby reducing fire behavior potential within the amendment area. Invasive plants will continue to be of concern in fire management as most fire management activities are either surface or vegetation disturbing and subsequently, the impacts from these activities include increased susceptibility to exotic species (USDI BLM 2013). With the potential listing of sage grouse as a threatened species, response to wildfires in sage grouse habitat could change from limited or conditional suppression to full suppression/protection. These changes could increase costs and add complexity to wildland fire management.

Summary of Effects

Interim guidance currently addresses priority suppression in sage grouse habitat areas; therefore, sage grouse habitat will continue to be a priority after life and property for wildfire suppression actions. Fuel treatments will continue to be designed with objectives to modify fire behavior, change the fuel profile, treat fuels in the wildland-urban interface, and in some areas restore native plants and create landscape patterns that benefit/protect Bi-state DPS habitat.

Alternative B – Proposed Action

Under this alternative, more specific standards and guidelines are identified for managing anthropogenic uses. Specific standards and guidelines affecting fire and fuels management can be found in table 2-4 under the fire and fuels section.

Table 3-28. Indicators for assessing effects to fire and fuels management, alternative B

Indicator	Changes
Alteration in vegetation cover and composition that may result in a positive or negative shift in FRCC.	Fuel treatments would continue to have objectives to positively affect FRCC rating. Restrictions on reduction of canopy cover could increase fuel loads and associated fire risk and negatively affect FRCC rating.
Changes in response to and suppression of wildland fire.	Wildland fire in Bi-state DPS habitat becomes a priority for suppression after life and property. Fire suppression costs are likely to be higher under this alternative due to the added complexity of protecting habitat. Additional resources may be required to enable a quicker more effective response to wildfire in habitat areas.
Change in how fuel treatments are designed and implemented to reduce impacts from wildland fire.	Restrictions on fuels treatment could impact ability to control fuel loading levels and result in increased fire risk. Fuel treatments costs are likely to be higher under this alternative as well. There would be no change in non-habitat areas.

Direct/Indirect Effects. Alternative B would provide additional protection and restoration measures in sagebrush habitat, as compared to alternative A. Fire and fuels management projects would be designed to promote Bi-state DPS habitat by protecting and promoting existing sagebrush ecosystems. This would be accomplished by maintaining sagebrush cover, requiring the use of native seeds, reducing the threat of

invasive plants and placing fuels management projects in habitat to reduce wildfire threat. These proposed modifications to fire and fuels management would result in increased sagebrush protection as compared to alternative A. Prioritizing fire suppression in Bi-state DPS habitat would protect vegetation by reducing the threat and effects of wildfire, but could result in increased fuel load and spread of noxious weeds in those areas. Prioritizing suppression to conserve habitat may limit suppression options and increase cost for fire management programs as compared with alternative A. This is due to the likelihood of an aggressive suppression response and more resources required to protect habitat. Prioritizing Bi-state DPS habitat over property or infrastructure is a decision that would likely be made by land managers and incident command personnel.

Prescribed fire and mechanical treatments focused in Bi-state DPS habitat will be more effective in controlling encroachment of undesirable shrub species. Prescribed fire is a tool that can assist in the recovery of sagebrush habitat in some vegetation types, and many treatments would likely be located adjacent to private land to reduce fuel loading to acceptable levels also meeting fire and fuels management objectives. The combination of young western juniper being more susceptible to fire damage and reduced fuel loads allows fire managers more opportunity to perform a prescribed burn and minimize the encroachment of western juniper into sagebrush ecosystems.

Vegetation treatments used to mitigate impacts by creating or improving sagebrush areas is where the impact on wildland fire management would occur. Aggressive fire suppression and altered fire regimes have caused vegetation to miss a fire cycle or two, resulting in decadent, dead stands. This can increase fire intensity and fire severity of an area. By reducing or dis-continuing the use of vegetation treatments that mimic the natural fire effects, typically a downward shift in FRCC rating results, leaving areas more prone to large wildfires with greater intensity and severity. Fuel treatments typically create early seral vegetation that is less likely to support large wildfires and therefore maintain or positively affect FRCC rating. Restoration projects that benefit Bi-state DPS would improve FRCC including reducing the infestation of cheatgrass and other nonnatives that can alter fire frequency and removing encroaching conifers could reduce fire intensity and fire potential and subsequently improve FRCC.

Vegetation and weed treatments that decrease standing vegetation and associated fuel loads could decrease the intensity of wildland fires and allow fires to be more easily controlled. Prescribed fire could be utilized for noxious weed control. However, after prescribed burning, areas would need to be monitored and emerging weeds treated on a site-specific basis. Management actions that increase and maintain sagebrush and other shrub cover may result in increased fuel loading, which increases the intensity of wildland fire.

Fuel treatments to meet Bi-state DPS habitat objectives would more likely be mechanical, which can be more expensive than using prescribed fire as a treatment method. This is due to the necessity of treatments to retain minimum percent cover of sagebrush. This is more easily ensured when using mechanical treatments versus prescribed fire treatment methods. If treatments are more expensive, fewer acres can be treated with the same amount of funds. Restrictions on fuels treatment could impact ability to control fuels levels and result in increased fire risk.

For example: Restrictions on reduction of canopy cover could increase fuel loads and associated fire risk. Allowing a range of fuel treatment options provides management flexibility to reduce large fire costs and achieve fire and fuels goals and objectives. Prioritizing areas for fire suppression can limit management options and increase costs for fire management. Management actions that are intended to improve, create, or re-establish healthy ecological conditions in various vegetation types benefit the fire and fuels program in the long term by shifting FRCC to historic conditions and promoting the most efficient use of fire and fuels fire management program resources.

Cumulative Effects. Fire suppression has generally been effective in these areas and it is reasonable to assume it would continue into the future, but may become increasingly difficult if fuels accumulate in the absence of frequent, low intensity fire and mechanical treatment in habitat areas. Post-fuel treatment and restoration management projects in habitat would be designed to ensure long-term persistence of seeded or pre-treatment native plants to maintain the desired condition to protect and conserve habitat. Some restoration projects in Bi-state DPS habitat may not meet hazardous fuels reduction objectives and therefore may be more prone to wildfire due to lack of disturbance. Completed restoration projects may further increase the suppression priority of that area, increasing demands for fire suppression resources. Combining efforts to reduce fuel loading and improve habitat will increase the amount of vegetation treatments possible and will reduce the impact on the overall disturbance on the landscape. This would also be important for areas currently in fire regime condition classes II and III, where a positive shift in condition class could be expected in treated areas.

Summary of Effects

The standards and guidelines proposed under this alternative that relate to fire and fuels management provide a more concentrated focus and priority on Bi-state DPS habitat retention and avoidance of impacts than the current situation, under which the agencies operate using interim guidance. When wildfires occur in Bi-state DPS habitat, the habitat will be prioritized for suppression immediately after life and property, and unburned Bi-state DPS habitat within a fire perimeter will also be suppressed. Although interim guidance currently addresses priority suppression in sage-grouse habitat areas, this alternative would make this guideline policy.

Alternative B proposes a standard to include fuels treatments that will emphasize protection of existing sagebrush ecosystems. In addition, fuel management projects will be proposed in habitat to reduce wildfire threats and fire will not be used where the risk of escaped fire could cause negative long-term impacts.

In addition, restoration objectives will be proposed for projects occurring in habitat areas. Alternative B includes several guidelines to address the threat of cheatgrass, including fire and brush control not being utilized in areas where there is a risk of cheatgrass invasion. Restoration and protection of sagebrush ecosystems is also addressed under this alternative and includes not utilizing fire, and mechanical treatments in pre-identified areas based on zonal precipitation averages and minimum vegetation cover thresholds. Some projects will be developed to include a restoration focus to benefit sagebrush ecosystems and Bi-state DPS habitat.

Alternative C

Under alternative C, more conservation-oriented and restrictive standards and guidelines are proposed.

Table 3-29. Indicators for assessing effects to fire and fuels management, alternative C

Indicator	Changes
Alteration in vegetation cover and composition that may result in a positive or negative shift in FRCC.	Fuel treatments would continue to have objectives to positively affect FRCC rating. Restrictions on reduction of canopy cover could increase fuel loads and associated fire risk and negatively affect FRCC rating.
Changes in response to and suppression of wildland fire.	Wildland fire in Bi-state DPS habitat becomes a priority for suppression after life and property. Fire suppression costs are likely to be higher under this alternative due to the added complexity of protecting habitat. Additional resources may be required to enable a quicker more effective response to wildfire in habitat areas.
Change in how fuel treatments are designed and implemented to reduce impacts from wildland fire.	Restrictions on fuels treatment could impact ability to control fuel loading levels and result in increased fire risk. Fuel treatments costs are likely to be higher under this alternative as well. There would be no change in non-habitat areas.

Direct/Indirect Effects. Effects from fire management would be similar to under alternative B. Under alternative C, fuels and other treatments to benefit habitat could be proposed with an emphasis on maintaining, protecting, and expanding sagebrush ecosystems. Emphasis would be concentrated in Bi-state DPS habitat to protect and conserve the habitat. The risk of high intensity fire could be reduced in these areas, thus causing a shift in condition class III areas to condition class II.

Creating and maintaining fuel breaks and green strips in strategic locations, prioritizing wildfire suppression, and focusing fuel treatments in habitat would reduce the size and intensity of wildland fires in habitat areas, but may result in an increase in fuels management implementation and fire suppression costs. Alternative C would also provide added measures for fuels treatment effectiveness and post-fire rehabilitation activities and monitoring. These added measures would increase both fuels management planning, implementation, and post-fire rehabilitation costs, but would increase the awareness and encourage partnerships with other agencies and resource programs.

Management under alternative C would limit the placement of fire suppression infrastructure in areas of solid sagebrush which would result in some loss of flexibility in management of wildfire and an increase in fire suppression costs. The added emphasis of prepositioning resources and prioritizing fire suppression immediately after firefighter and public safety would increase the use of resource, increasing firefighter exposure as well as overall program costs. However, it would result in a reduction in the loss of habitat from wildland fire. Under alternative C, added measures would be incorporated in overall fire management planning to protect habitat. These added measures would increase planning time and costs, but would result in an increase in awareness and potentially benefit Bi-state DPS habitat.

Cumulative Effects. The cumulative effects for alternative C are expected to be the same as those for alternative B.

Summary of Effects

Many of the standards and guidelines proposed under this alternative that relate to fire and fuels management use the "resistance and resilience" concept developed by the WAFWA group and provide a more concentrated focus and priority on Bi-state DPS habitat retention and avoidance of impacts than the current situation, under which the agencies operate using interim guidance.

Wildfire suppression policy is expected to be the same as alternative B with the addition of fires that occur in sagebrush ecosystems and identified as moderate to low resilience and resistance will be

aggressively suppressed. This alternative also proposes fuel breaks that would be included with vegetation treatments to provide anchor points to aid in more aggressive wildfire suppression actions.

In addition, the use of mechanical treatments versus fire in low resistance/resilience areas will aggressively address cheatgrass and other invasives as well as early to mid-phase pinyon juniper expansion. Reducing fuel loading levels will reduce the risk of high severity fire in habitat. Fuel breaks and green strips would be aimed at protecting sagebrush cover. In addition, alternative C includes several guidelines for aggressive management of cheatgrass, other invasives and sagebrush ecosystems during restoration activities.

Short-term Uses and Long-term Productivity

NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). As declared by the Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101). Discussion related to short-term uses and long-term productivity can be found in detail under individual resource discussions.

All alternatives may result in implementation of ground-disturbing activities to meet objectives. Such ground-disturbing activities would produce short-term effects to soil, water quality, and habitat while providing the long-term benefits in terms of the restoration and conservation of Bi-state sage grouse and its habitat.

Unavoidable Adverse Effects

As a programmatic decision with no physical action there are no unavoidable adverse effects. Implementation of any of the alternatives would result in some unavoidable adverse effects. The alternatives were designed to move resources toward desired conditions, but to accomplish those goals some unavoidable adverse effects would result. These effects vary by resource and are discussed in other parts of this chapter.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as a powerline rights-of-way or road.

Due to the programmatic nature of the proposed amendment, it would not result in irreversible actions or alternatives. No alternative makes any irretrievable or irreversible commitments of resources. This amendment includes goals, objective, standards and guidelines to help direct management of activities occurring in Bi-state sage grouse habitat. There is no commitment of resources, no prohibitions of activities, no directions that cannot be changed or altered to allow future actions.

Other Required Disclosures

Several of the laws and executive orders listed in chapter 1 require project-specific findings or other disclosures. They apply to all alternatives considered in detail in this EIS.

Legislative and/or Regulatory

Endangered Species Act. Federally threatened or endangered species known to reside or nest in the project area will not be affected by adoption of the regulatory measures proposed in this DEIS.

National Historic Preservation Act. Cultural resource surveys have not been completed for this project. Nothing in this proposed action requires ground-disturbing activity that could impact historic properties located in the planning area. Cultural resource inventories will continue to be required for all site-specific project activities.

Clean Water Act. Nothing in this proposed action will change or modify standards, guidelines, and direction contained in the Forest Plan, BMPs, and applicable FSM and FSH direction or the BLM's Resource Management Plans. Ongoing and future site-specific projects will adhere to these standards, guidelines, and direction, and by doing so will continue to be consistent with the Clean Water Act and amendments. No permits are required for any of the alternatives.

Clean Air Act. There are no emissions related to implementation of any of the proposed action and selection of the proposed action or alternatives will are exceed State of Nevada Ambient Air Quality Standards (46 FR 43141).

Effects on Prime Farm Land, Range Land, and Forestland

No prime farm land or range land would be adversely affected by the action alternatives. Forestland would maintain its long-term productivity.

Effects on Civil Rights, Women, and Minorities

This project would not have adverse effects on civil rights, women, or minorities.

Executive Orders

Executive Order 11593 (Cultural Resources). Directs Federal agencies to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation. This action will not impede the ability of the Forest Service or BLM to follow this direction.

Executive Order 11988 (Floodplains). Directs Federal agencies to take action to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. A floodplain is defined as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of off shore islands, including at a minimum that area subject to a 1 percent or greater of flooding in any given year." Forest Plan standards and guidelines identify floodplains as a process group within riparian management areas and provide direction to avoid development in these areas. The proposed action does not propose occupation or modification of floodplains.

Executive Order 11990 (Wetlands). Requires Federal agencies to avoid, to the extent possible, the long-term and short-term adverse effects associated with the destruction or modification of wetlands. The proposed action does not propose occupation or modification of wetlands.

Executive Order 12898 (Environmental Justice). Directs Federal agencies to identify and address the issue of environmental justice, which concerns adverse human health and environmental effects of agency programs that disproportionately affect minority and low-income populations. For the purpose of screening for environmental justice concerns, minority and low-income populations are not a concern in Alpine, Douglas, Esmeralda, Lyon, Mineral, or Mono counties. The widely dispersed area over which this management direction takes place makes it unlikely that any particular minority or low-income

population in Alpine, Douglas, Esmeralda, Lyon, Mineral, or Mono counties is disproportionately impacted. Implementation of the proposed action or alternatives for the Bi-state sage grouse project will not cause adverse health, social, or environmental effects that would disproportionately affect minority and low-income populations.

Executive Order 13007 (American Indian Sacred Sites). Directs Federal agencies to accommodate access to and ceremonial use of American Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. Under the proposed action and alternatives the agencies will continue to accommodate access to and ceremonial use of American Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites.

Executive Order 13186 (Migratory Birds). Directs Federal agencies taking actions having or likely to have a negative impact on migratory bird populations to work with the USFWS to develop an agreement to conserve those birds. Because of the programmatic nature of the proposed action and alternatives, there will be no negative impacts on migratory bird populations. The agencies will continue to work with the USFWS to develop an agreement to conserve those birds.

Chapter 4. Preparers and Contributors

The Forest Service consulted the following individuals, Federal, state, and local agencies, tribes and other organization and individuals during the development of this environmental impact statement:

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Glossary

Active lek ~ A lek in which two or more males are detected for 2 or more years within a 5-year period.

Best available science ~ The order of preference is generally peer-reviewed publications, technical reports, dissertations and theses, gray literature, and finally, expert opinion.

Critical disturbance period ~ Period during which disturbance is most damaging to productivity or survival; specifically, March 1 through June 30.

Desired condition ~ Description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed, described in terms that are specific enough to allow progress toward their achievement to be determined, but do not include completion dates.

Diffuse disturbance ~ Pressure is exerted over broad spatial or temporal scales.

Discrete disturbance ~ Having a distinct measureable impact in space and time.

Discretionary ~ Action is not legally mandated and can be influenced by agency's judgment or preference.

Distinct population segment (DPS) ~ A vertebrate population or groups of populations that is discrete from other populations of the species and significant in relation to the entire species.

Expert opinion ~ In the absence of non-contradictory, peer-reviewed, context-specific research, the lead biologist may use expert opinion. Experts are people that have contributed to the best available science on the resource in questions, agency designees for the resource, and other biologists/managers with field experience managing the resource.

Goal ~ Concise description of desired future conditions that are written in broad, general terms without specific dates for achievement.

Guideline ~ A constraint on decision-making that allows for departure from its terms, as long as the purpose of the guideline is met.

Long-term negative impact ~ An impact that disrupts birds for a season or more, or an impact that precludes a season's activity.

Major disturbance ~ An impact that disrupts the birds and is likely to cause a negative impact (e.g., direct mortality from vehicles traffic, noise above 55 decibels, continual traffic).

Minor disturbance ~ An impact that disrupts birds, but is unlikely to cause a negative impact (e.g., occasional flushing from occasional vehicle travel between 10am and 5pm).

Mitigation ~ Includes actions that: (1) Avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (5) compensating for the impact by replacing or providing substitute resources or environments.

Negative impact ~ An action that degrades/reduces the condition or distribution of priority habitat, the bird's productivity or survival, or the bird's abundance or distribution.

Neutral impact ~ An action that does not change the condition or distribution of priority habitat, the bird's productivity or survival, or the bird's abundance or distribution.

Non-discretionary ~ Action where agency is legally mandated to act as part of required duties without exercise of personal judgment or preference.

Objective ~ Concise, measurable, time-specific statements of desired rates of progress toward desired conditions.

Positive impact ~ An action that improves/increases the condition of priority habitat, the bird's productivity or survival, or the bird's occupancy or distribution.

Regulatory Mechanism ~ Also known sometimes known as "management direction", a regulatory mechanism refers to Forest Plan standards and guidelines that define the sidebars within which the Forest, or BLM will need to work when implement or authorizing projects. They can include limitations of time frames, locations, noise level to minimize disturbance. They can also include thresholds or limits on the extent or amount of work that can be completed in habitat or to improve habitat.

Short-term impact ~ An impact lasting for a portion of a season that will disrupt, but not preclude, that season's activity.

Standard ~ A mandatory constraint on decision-making. Not meeting a standard would require a site specific forest plan amendment.

Structures ~ Anything composed of parts and arranged together in some way (includes fences, building, derricks, platforms and any number of man-made elements that can be found on NFS lands and BLM public lands).

References

Agee, J.K. 1993. Fire ecology of Pacific Northwest forests. Island Press, Washington, DC. 493 p.

Agee, J.K.; Skinner, C. N. 2005. Basic Principles of forest fuel reduction treatments. Forest Ecology and Management 211. 14 p.

Ammon, E.; Boone, J. 2013. Bird species management guidelines. 19 p.

Balch, J.K; Bradley; B.A.; D'Antonio; C.M.; Gomez-Dans, J. 2013. Introduced annual grass increases regional fire activity across the arid western USA (1980–2009). Global Change Biology 19: 173–183.

Baydack, R.K.; Hein, D.A. 1987: Tolerance of sharp-tailed grouse to lek disturbance. Wildlife Society Bulletin 15: 535–539.

Beck, J.L.; Mitchell, D.L. 2000. Influences of livestock grazing on sage grouse habitat. Wildlife Society Bulletin 28(4): 993–1002.

Bi-State Advisory Committee (Nevada and California). 2012. Bi-state action plan: Past, present, and future actions for the conservation of the greater sage-grouse Bi-state distinct population segment. 108 p. +appendices.

Bi-State Local Working Group. 2004. Greater sage-grouse conservation plan for the Bi-State area of Nevada and eastern California, first edition. [Accessed online 6/02/2014 at: http://www.ndow.org/uploadedFiles/ndoworg/Content/Nevada_Wildlife/Sage_Grouse/Bi-State-Plan.pdf.].

Blickley [and others]. 2012. Experimental evidence for the effects of chronic anthropogenic noise on abundance of greater sage-grouse at leks. *In:* Conservation Biology 26(3).

Blomberg, E.J.; Sedinger; J.S.; Atamian; M.T.; Nonne, D.V. Characteristics of climate and landscape disturbance influence the dynamics of greater sage-grouse populations. Ecosphere 3(6): 55 [http://dx.doi.org/10.1890/ES11-00304].

Bonifacio, G. 2013. Nevada Copper receives special use permit and provides update on land bill, website announcement [http://www.nevadacopper.com/s/NewsReleases.asp?ReportID=589951&_Type=News-Releases&_Title=Nevada-Copper-Receives-Special-Use-Permit-And-Provides-Update-On-Land-Bill].

Bradford, D.F.; Tabatabai, F.; Graber, D.M. 1993. Isolation of remaining populations of the native frog, *Rana muscosa*, by introduced fishes in Sequoia and Kings Canyon National Parks, California. Conservation Biology 7: 882–888.

Braun, C.E. 1998. Sage grouse declines in western North America: What are the problems? Proceedings Western Association of State Fish and Wildlife Agencies. 17 p.

Brown, K.G.; Clayton, K.M. 2004. Ecology of the greater sage-grouse (*Centrocercus urophasianus*) in the coal mining landscape of Wyoming's Powder River Basin. Final executive report. 17 p.

Browning, M.R. 1993. Comments on the taxonomy of *Empidonax traillii* (willow flycatcher). Western Birds 24: 241–257.

Bryan, R.; Collins; J.; Hastings, R.; [and others]. 2012. Technical report: Underground only alternative for the Pumpkin Hollow Copper Project, Lyon County, Nevada. Prepared by Tetra Tech, Inc. 253 p.

California Statewide Comprehensive Outdoor Recreation Plan. 2008. [http://www.recpro.org/assets/Library/SCORPs/ca_scorp_2008.pdf].

Call, M.W.; Maser, C. 1985. Wildlife habitats in managed rangelands: The Great Basin of Southeastern Oregon. General Technical Report PNW187.

Casazza, M.L.; Coates; P.S.; Overton, C.T. 2011. Linking habitat selection to brood success in greater sage-grouse. *In:* Sandercock, M.K.; K Martin; and G. Segelbacher (editors). Ecology, conservation, and management of grouse. University of California Press. p. 151–167.

Chambers, J.C.; [and others]. 2005. Sagebrush steppe and pinyon-juniper ecosystems: Effects of changing fire regimes, increased fuel loads, and invasive species. Final report to the Joint Fire Science Program. September 30, 2005. 66 p.

Coates, P.S. 2007. Greater sage-grouse (*Centrocercus urophasianus*) nest predation and incubation behavior. PhD dissertation, Idaho State University, Pocatello. 181 p.

Coates, P.S.; Casazza, M.L. In preparation(a). Avoidance by greater sage-grouse of pinyon pine and juniper tree encroachment within sagebrush ecosystem.

Coates, P.S., Casazza, M.L. In preparation(b). Winter habitat selection of greater sage-grouse in the Bi-state DPS.

Coates, P.S.; Delehanty, D.J. 2010. Nest predation of greater sage-grouse in relation to microhabitat factors and predators. Journal of Wildlife Management 74: 240–248.

Coates, P.S.; Lockyer, Z.B.; Farinha, M.A.; [and others]. 2011. Preliminary analysis of greater sage-grouse reproduction in the Virginia Mountains of northwestern Nevada. U.S. Geological Survey Open-File Report 2011-1182. 32 p.

Collins, B.; Stephens, S.; Moghadda, J.; Battles, J. 2010. Challenges and approaches in planning fuel treatments across fire-excluded forested landscapes. Journal of Forestry January/February [http://ddr.nal.usda.gov/bitstream/10113/40248/1/IND44331204.pdf].

Connelly, J.W.; Knick, S.T.; Schroeder, M.A.; Stiver, S.J. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished report. Cheyenne, WY. 611 p.

Connelly, J.W.; Schroeder, M.A.; Sands, A.R.; Braun, C.E. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28: 967–985.

Council on Environmental Quality. 1997. Environmental justice: Guidance under the National Environmental Policy Act. Executive Office of the President. 40 p.

Crawford, J.A.; Olson, R.A.; West, N.E.; [and others]. 2004. Ecology and management of sage-grouse and sage-grouse habitat. Journal of Range Management 57: 2–19.

Davies, K.W.; Boyde, C.S.; Beck, J.L.; [and others]. 2011. Saving the sagebrush sea: An ecosystem conservation plan for big sagebrush. Biological Conservation 144: 2573–2584.

Eberhardt, L.L.; Majorowicz, A.K.; Wilcox, J.A. 1982. Apparent rates of increase for two feral horse herds. Journal of Wildlife Management 46(2): 367–374.

Economic Profile System-Human Dimensions Toolkit. 2013. Headwaters Economics.org. Xcel spreadsheets for agriculture, amenities, demographics, fed-payments, governments, land-use, mining, non-labor, services, timber, tourism, socioeconomic measures and summary [created, June 27, 2013].

Floyd, T.; Elphick, C.S.; Chisholm, G.; [and others]. 2007. Atlas of the breeding birds of Nevada. University of Nevada Press, Reno. 581 p.

Forman, R.T.T.; Alexander, L.E. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics 29: 207–231.

Fulé, P.Z.; McHugh, C.; Heinlein, T.A.; Covington, W.W. 2001. Potential fire behavior is reduced following forest restoration treatments. *In:* Proceedings of the RMRS-P-22. USDA Forest Service, Ogden, UT. p. 28–35.

Garrott, R.A.; Taylor, L. 1990. Dynamics of a feral horse population in Montana. Journal of Wildlife Management 54(4): 603–612.

Geothermal Energy Association. 2013. [http://www.geo-energy.org/plantdetails.aspx?id=195; Wabuska geothermal power plant].

Glover, S.A.; Roberson, D.; Terrill, S.B.; Ryan, T.P. 2002. Middle Pacific Coast (birds). North American Birds 56(3): 352–355.

Graham, R.T.; Jain; T.B.; Loseke, M. 2009. Fuel treatments, fire suppression, and their interaction with wildfire and its impacts the Warm Lake experience during the Cascade Complex of wildfires in central Idaho, 2007. General Technical Report RMRS-GTR-229, USDA Forest Service Rocky Mountain Research Station, Fort Collins, CO. 36 p.

Graham, R.T.; McCaffrey, S.; Jain, T.B.; (technical editors). 2004. Science basis for changing forest structure to modify wildfire behavior and severity. General Technical Report RMRS-GTR-120, USDA Forest Service Rocky Mountain Research Station, Fort Collins, CO. 43 p.

Green, J.S.; Flinders, J.T. 1980. *Brachylagus idahoensis*. Mammalian Species 125. p 1-4.

Green, J.S.; Flinders, J.T. 1980a. Habitat and dietary relationships of the pygmy rabbit. Journal of Wildlife Management 33(2): 136–142.

Great Basin Bird Observatory. 2010. Nevada comprehensive bird conservation plan, version 1.0. Great Basin Bird Observatory, Reno, NV. 622 p.

Headwaters Economics. 2013. Economic profile system (EPS) socioeconomic profiles produced for Douglas, Esmeralda, Lyon and Mineral, counties, Nevada; and Alpine and Mono counties, California, and 6 county aggregate. [http://www.headwaterseconomics.org/eps/; data for economic profile system accessed on July 2, 2013].

Heller, D.; Reid, H. 2013. S. 159 113 Congress 1st session in the Senate of the United States. Lyon County Economic Development and Conservation Act. 18 p.

Holloran, M.J.; Anderson, S.H. 2005. Spatial distribution of greater sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107: 742–752.

Howell, C.A.; Wood, J.K.; Dettling, M.D.; [and others]. 2010. Least Bell's vireo breeding records in the Central Valley following decades of extirpation. Western North American Naturalist 79(1): 105–113.

Jennings, M.R. 1996. Status of amphibians. (Pages 921-944) *In:* Sierra Nevada Ecosystem Project: Final report to Congress. Volume II, Chapter 31. Centers for Water and Wildland Resources, University of California, Davis.

Jennings, M.R.; Hayes, M.P. 1994. Amphibian and reptile species of special concern in California. California Department Fish and Game, Rancho Cordova. 255 p.

Johnson, G. 2012. BLM Nevada Minerals Program, Powerpoint presentation. 39 p.

Knapp, R.A.; Matthews, K.R. 2000. Non-native fish introductions and the decline of the mountain yellow-legged frog from within protected areas. Conservation Biology 14(2); 428-438.

Knick et al. (in press). Greater sage-grouse: ecology and conservation of a landscape species and its habitats. University of California Press, 2011. 203 p.

LANDFIRE. 2014. LANDFIRE 1.1.0 Existing Vegetation Type layer. USDI Geological Survey. [Available: http://landfire.cr.usgs.gov/viewer/ [05/15/2014].

LeBeau, C. 2012. Evaluation of greater sage-grouse reproductive habitat and the response to wind energy development in south-central, Wyoming. MS thesis, University of Wyoming, Laramie.

Manier, D.J.; Wood, D.J.A; Bowen, Z.H.;[and others]. 2013. Summary of science, activities, programs and policies that influence the rangewide conservation of greater sage-grouse (*Centrocerus urophasianus*). U.S. Geological Survey open-file report 2013, Fort Collins, CO. 287 p.

Miller, C. 2012. The hidden consequences of fire suppression. Park Science 28(3).

Miller, R.F.; Johnson, D.D. 2005. Woodland expansion, stand dynamics and fuel loads in western juniper (*Juniperus Occidentalis*) woodlands.

Miller, R.F.; Bates, J.D.; Svejcar, T.J.; [and others]. 2005. Biology, ecology and management of western juniper. Technical Bulletin 152, Oregon State University Agricultural Experiment Station, Corvallis, OR. 77 p.

Miller, R.F.; Knick, S.T.; Pyke, D.A.; Meinke, C.W.; [and others]. 2011.Characteristics of sagebrush habitats and limitations to long-term conservation. (Pages 145–184) *In:* S.T. Knick and J.W. Connelly (editors). Greater sage-grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology 38. University of California Press, Berkeley, CA.

Minnesota IMPLAN Group (MIG). 2009. IMPLAN Professional Version 3.0.

Mullally, D.P. 1953. Observations on the ecology of the toad *Bufo canorus*. Copeia 1953(3): 182–183.

NTT (National Technical Team; Sage Grouse). 2011. A report on national greater sage-grouse conservation measures. December 21.

National visitor use monitoring, visitor use report. Region 4, Humboldt-Toiyabe National Forest, 2005. [http://apps.fs.fed.us/nrm/nvum/results/ReportCache/Rnd2_A04017_Master_Report.pdf

NatureServe. 2013. NatureServe Explorer. Accessed online 07/2013 at http://www.natureserve.org/explorer/index.htm.].

Naugle, D.E., Doherty, K.E.; Walker, B.L.; [and others]. 2011. Energy development and greater sage-grouse. (Pages 489–503) *In:* S.T. Knick and J.W. Connelly, editors. Greater sage-grouse: Ecology and conservation of a landscape species and its habitats. Studies in Avian Biology 38. University of California Press, Berkeley.

Nevada Division of Environmental Protection. 2012. Notice of proposed action: Bureau of Mining Regulation and Reclamation, Pumpkin Hollow Reclamation Permit 0288. 1 p.

Nevada Division of Environmental Protection. 2012b. Notice of proposed action: Bureau of Mining Regulation and Reclamation, Silver Peak Mine Permit renewal. 2 p.

Nevada Division of Wildlife. 2001. Bighorn sheep management plan. 44 p.

Nevada Division of Wildlife. 2010. Big game species distribution, Geographic information systems layer.

Nevada Division of Wildlife. 2013. Big game status 2012–2013. 213 p.

Nevada Statewide Comprehensive Outdoor Recreation Plan, 2010 [http://parks.nv.gov/wp-content/uploads/2009/10/Test2010_SCORP.pdf].

Omi, P.N.; Martinson, E.J. 2004. Effectiveness of thinning and prescribed fire in reducing wildfire severity. *In:* (p. 87–92) Proceedings of the Sierra Nevada science symposium: Science for management and conservation; D.D. Murphy and P.A. Stine (editors). General Technical Report PSW-193, USDA Forest Service Pacific Southwest Research Station, . Albany, CA.

Peterson, D.L.; Johnson, M.C.; Morris, C.; [and others]. 2005. Forest structure and fire hazard in dry forests of the Western United States. General Technical Report PNW-GTR-628, USDA Forest Service Pacific Northwest Research Station, Portland, OR. 30 p.

Pollet, J.; Omi, P.N. 2002. Effect of thinning and prescribed burning on crown fire severity in ponderosa pine forests. International Journal of Wildland Fire 11: 1–10.

Pyle, W.H.; Crawford, J.A. 1996. Availability of foods of sage grouse chicks following prescribed fire in sagebrush-bitterbrush. Journal of Range Management 49: 320–324.

Rhodes, E.C.; Bates, J.D; Shap, R.N.; [and others]. 2010. Fire effects on cover and dietary resources of sage grouse habitat. Journal of Wildlife Management 74: 755–764.

Rimbley, T.; Torrell, L.A. 2011. Grazing Costs: What's the Current Situation? Moscow, Idaho: University of Idaho.U.S. Department of Agriculture, Forest Service (USFS). 2014. Forest Economic Analysis Spreadsheet Tool (FEAST).

Sapp, C. 2007. Geothermal power generation and biodiesel production in Wabuska, Nevada. *In:* GHC Bulletin, March. 12 p.

Schmidt, K.M.; Menakis, J.P.; Hardy, C.C.; Hann, W.J.; Bunnell, D.L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Scott, J.H. 2003. Canopy fuel treatment standards for the wildland-urban interface. USDA Forest Service Proceedings RMRS-P-29, USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Scott, J.H. 2008. FireWords glossary of fire science terminology. Version 1.0.2. [http://www.firewords.net/; accessed online August 19, 2011].

Scott, J.H.; Burgan, R.E. 2005. Standard fire behavior fuel models: A comprehensive set for use with Rothermel's surface fire spread model. General Technical Report RMRS-GTR-153, USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Smith, E.; Sistare, S. 2013. Resource Concepts Inc. (RCI) [http://www.livingwithfire.info/fire-hazard-assessments; accessed online June and July 2013].

Tausch, R. [and others]. 2005. Woodland expansion, stand dynamics and fuel loads in single-needled pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) woodlands. USDA Rocky Mountain Research Station.

Terrill, S.B.; Rogers, M.M.; Glover, S.A.; Pandolfino, E. 2007. Northern California (birds). North American Birds 61(3): 504–509.

Tingley, J. 2012. Mining districts of Nevada, Nevada Bureau of Mines and Geology Report 47. Second Edition. 329 p.

Unitt, P. 1987. *Empidonax traillii extimus*: and endangered subspecies. Western Birds 18(3); 137−162.

U.S. Census Bureau. 1995. Nevada, population of counties by decennial census: 1900 to 1990. [http://www.census.gov/population/cencounts/nv190090.txt.; accessed May 29, 2013].

USDA Forest Service. 1986. Toiyabe National Forest Land and Resource Management Plan. Sparks, NV.

USDA Forest Service. 1986b. Humboldt National Forest Land and Resource Management Plan. Sparks, NV.

USDA Forest Service. 2012a. Geothermal leasing on the Humboldt-Toiyabe National Forest, final environmental impact statement. 529 p.

USDA Forest Service. 2012b. Supplement to the Carson City Field Office geothermal leasing environmental assessment (EA-NV-030-06-025). Aurora area, Bridgeport District, Humboldt-Toiyabe National Forest. 55 p.

USDA Forest Service. 2013. Humboldt- Toiyabe Fire Management Plan. Sparks, NV.

USDA Forest Service. 2013b. Carson-Bridgeport Ranger Districts Needs Assessment. Humboldt-Toiyabe National Forest, draft document.

USDA National Agricultural Statistics Service (USDA NASS). 2014. State grazing fee rates. [http://www.nass.usda.gov/QuickStats>].

USDA National Agricultural Statistics Service (USDA NASS). 2014b. 2012 Census of agriculture. [http://www.nass.usda.gov>].

USDA; USDI. 2000. Managing the impacts of wildland fires on communities and the environment: A report to the president (*aka* National Fire Plan) [http://www.forestsandrangelands.gov/].

USDA; USDI. 2009. Guidance for implementation of federal wildland fire management policy (2009) [http://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf].

USDA; USDI. 2013. Bi-State Sage Grouse Proposed Action. USDA Forest Service, Bureau of Land Management.

USDI; USDA. 2006. A collaborative approach for reducing wildland fire risk to communities and the environment: 10-Year comprehensive strategy. [Implementation plan available at: http://www.forestsandrangelands.gov/].

USDI; USDA; DOE; [and others]. 1995. Federal wildland fire policy. [http://www.nifc.gov/fire_policy/index.htm and for 2001 updates; http://www.nifc.gov/fire_policy/history/index.htm].

USDI BLM. 1997. Tonopah resource management plan and record of decision. Battle Mountain District, Tonopah Field Station, Tonopah NV. 193 p.

USDI BLM. 2001. Carson City Field Office consolidated resource management plan. Sparks, NV.

USDI BLM. 2011a. Greater sage-grouse interim management policies and procedures. Instruction Memorandum No. 2012-043. December 22.

USDI BLM. 2011b. Sage grouse conservation related to wildland fire and fuels management. WO-IM-2011-138.

USDI BLM. 2012a. Nevada State Office instruction memorandum: Bi-state sage grouse direction. December 3, 2012; No. NV-2013-009.

USDI BLM. 2012b. Washington Office instruction memorandum WO-IM 2010-071: Gunnison and greater sage-grouse management considerations for energy development.

USDI BLM. 2012c. Interim direction to incorporate conservation policies and procedures for ongoing and proposed authorizations and activities that affect Bi-state sage grouse. IM NV 2012-061.

USDI BLM. 2013. Reasonably foreseeable development scenario for solar and wind for the Battle Mountain District resource management plan/environmental impact statement. Battle Mountain District.

USDI BLM. 2013. Battle Mountain resource management plan and EIS, 3-3 Socioeconomic baseline assessment. Draft document.

USDI BLM. 2013. Analysis of the management situation, Carson City District resource management plan revision and environmental impact statement. Draft document. Carson City district resource management plan revision.

USDI BLM. 2013a. Mineral potential assessment report. Carson City District, Resource management plan revision and environmental impact statement. 116 p.

USDI BLM. 2013b. Analysis of the management situation. Carson City District, Resource management plan revision and environmental impact statement. 490 p.

USDI BLM. 2013c. Bi-state distinct population segment of greater sage-grouse interim management policies and procedures. Instruction Memorandum NV-2013-009. 16 p.

USDI BLM and USDA Forest Service. 2008. Programmatic environmental impact statement for geothermal leasing in the western United States, Volume 2.

USDI BLM and USDA Forest Service. 2013. Draft Nevada and Northeastern California Greater Sage-grouse Land Use Plan Amendment/Environmental Impact Statement.

USDI Fish and Wildlife Service (FWS). 1998. Draft recovery plan for the least Bell's vireo. Portland, OR. 139 p.

USDI FWS. 2002a. Endangered and threatened wildlife and plants: 12-month finding for a petition to list the Yosemite toad. *Federal Register* 67(237):75834-75843.

USDI FWS. 2002b. Southwestern willow flycatcher recovery plan. Albuquerque, NM. 210 p. + appendices.

USDI FWS. 2006. Recovery plan for the Carson wandering skipper (*Pseudocopaeodes eunus obscurus*). Sacramento, CA. 94 p.

USDI FWS. 2008a. Recovery plan for the Sierra Nevada bighorn sheep. Sacramento, CA. 199 p.

USDI FWS. 2008b. Endangered and threatened wildlife and plants; designation of critical habitat for the Sierra Nevada bighorn sheep (*Ovis canadensis sierra*) and taxonomic revision; final rule. *Federal Register* 73(151):45534-45604.

USDI FWS. 2008c. Birds of conservation concern 2008. Division of Migratory Bird Management, Arlington, VA. 87 p.

USDI FWS. 2010. Endangered and threatened wildlife and plants: 12-month finding for a petition to list the greater sage-grouse (*Centrocercus urophasianus*) as threatened or endangered; proposed rule. *Federal Register* 75(55): 13910–14014.

USDI FWS. 2012. Mountain yellow-legged frog (*Rana muscosa*), Southern California distinct population segment. 5-year review: summary and evaluation. Carlsbad, CA. 78 p.

USDI FWS. 2013a. Endangered and threatened wildlife and plants; threatened status for the Bi-State Distinct Population Segment of greater sage-grouse with special rule. *Federal Register* 78 (208): 64358-64384.

USDI FWS. 2013a. Greater sage-grouse (*Centrocercus urophasianus*) conservation objectives: Final report. Denver, CO. 115 p.

USDI FWS. 2013b. Information, planning, and conservation system (IPAC). Queried for counties in California and Nevada, 07/09/2013 [accessed online at http://ecos.fws.gov/ipac/].

USDI FWS. 2013b. Species assessment, Bi-State Distinct Population Segment of greater sage-grouse. [Accessed online 06/01/2014 at: http://www.fws.gov/nevada/nv_species/documents/sage_grouse/species-report-service2013a.pdf].

USDI FWS. 2013d. Endangered and threatened wildlife and plants; endangered status for the Sierra Nevada yellow-legged frog and Northern Distinct Population Segment of the mountain yellow-legged frog, and threatened status for the Yosemite toad. *Federal Register* 78 (80): 24472-24514.

USDI FWS. 2013e. Endangered and threatened wildlife and plants; designation of critical habitat for the Serra Nevada yellow-legged frog, the Northern Distinct Population Segment of the mountain yellow-legged frog, and the Yosemite toad. *Federal Register* 78 (80): 24516-24574.

USDI FWS. 2014a. Information, planning, and conservation system (IPAC). Endangered, threatened, proposed, and candidate species list. Queried for amendment area in California and Nevada, 05/15/2014. [Accessed online at: http://ecos.fws.gov/ipac/.].

USDI FWS. 2014b. Endangered and threatened wildlife and plants: Endangered status for Sierra Nevada yellow-legged frog and Northern Distinct Population Segment of the mountain yellow-legged frog, and threatened species status for Yosemite toad. *Federal Register* 79(82): 24256-24310.

U.S. Department of Labor, Bureau of Labor Statistics. 2011. Labor force data by county, 1990, 1995, 2000, 2005–2010 annual averages. [ftp://ftp.bls.gov/pub/special.requests/la/; accessed March 15, 2011].

Visher, M.; Coyner, A., 2012. Major mines of Nevada 2011: Mineral Industries in Nevada's Economy. Nevada Bureau of Mines and Geology Special Publication P-23. 28 p.

Walker, B.L.; Naugle, D.E. 2011. West Nile Virus ecology in sagebrush habitat and impacts on greater sage-grouse populations. (Pages 127–146) *In:* [S.T. Knick and J.W. Connelly]. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology. University of California Press, Berkeley, CA.

Walker, B.L.; Naugle, D.E.; Doherty, K.E. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Management 71: 2644–2654.

Wambolt, C.L.; Walhof, K.S.; Frisina, M.R. 2001. Recovery of big sagebrush communities after burning in south-western Montana. Journal of Environmental Management 61: 243–252.

Wasley, T. 2004. Nevada's mule deer population dynamics: Issues and influences. Nevada Division of Wildlife, Biological Bulletin No. 14. 70 p.

Weiss, N.T.; Verts, B.J. 1984. Habitat and distribution of pygmy rabbits in Oregon. Great Basin Naturalist 44: 563–571.

Wisdom, M.J.; Meinke, C.W.; Knick, S.T.; Schroeder, M.A. 2011. Factors associated with extirpation of sage-grouse. Studies in Avian Biology 38: 451–472.

Wolfe, M.L., Jr. 1980. Feral horse demography: a preliminary report. Journal of Range Management 33: 354–360.

Yanish, C.R.; Bunting, S.C.; Kingery, J.L. 2005. Western juniper (*Juniperus occidentalis*) succession: Managing fuels and fire behavior. *In:* (p. 16–24) Sagebrush steppe and pinyon-juniper ecosystems: Effects of changing fire regimes, increased fuel loads, and invasive species. Final Report to the Joint Fire Science Program Project #00-1-1-03.

Young, J.A.; Evans, R.A. 1981. Demography and fire history of a western juniper stand. Journal of Range Management 34: 501–506.

Zeiner, D.; Laudenslayer, W.F.; Mayer, K.E. 1988. California's wildlife: amphibians and reptiles, volume 1. California Department of Fish and Game. 272 p.

Zeveloff, S.I. 1988. Mammals of the Intermountain West. University of Utah Press. p. 177–179.

Web (Only) References

http://www.goldplacer.com/where-to-find-gold/nevada-placer-gold/ [consulted].

http://nevada-outback-gems.com/prospecting_info/N_Nevada_Placer.htm [map consulted].

http://nevada-outback-gems.com/prospecting_info/micron_gold/Nevada_gold_prod.htm [consulted].

http://nevada-outback-gems.com/site_map/site_map_page.htm

http://www.westernmininghistory.com/ [California mining districts].

http://museumca.org/goldrush/district.html [California mining districts].

2013 GEA, Geothermal Energy Association: http://www.geo-energy.org/plantdetails.aspx?id=195 [Wabuska geothermal power plant].

http://onlinenevada.org/wabuska_hot_springs [Wabuska geothermal hot springs].

http://ndep.nv.gov/docs_09/nv0023655_f09.pdf [Wabuska NDEP fact sheet].

http://www.manta.com/c/mmz7fp0/homestretch-geothermal-llc [Wabuska info].

http://www.gryphongold.com/properties/construction_progress/ [Borealis Mine].

http://www.nevadacopper.com/s/Home.asp [Pumpkin Hollow].

http://www.silverstandard.com/projects/exploration/candelaria/

http://www.infomine.com/index/properties/BUCKSKIN.html

http://mineral-resources.findthedata.org/l/217698/Bovie-Lew-Placer

http://www.sec.nv.gov/appeal_docs/nev0070005_p12.pdf [Silver Peak lithium].

http://en.wikipedia.org/wiki/Silver_Peak,_Nevada

http://www.lincolnmining.com/projects/pine_grove/summary/

http://www.blm.gov/es/st/en/prog/minerals/solid_minerals_in.html

http://en.wikipedia.org/wiki/Directional_drilling

https://financere.nrel.gov/finance/content/geothermal-leasing-bureau-land-management

http://www.scorpiogold.com/s/mineral_ridge.asp

Appendix A: Bi-state Sage Grouse Interim Guidance and Management Protection

This appendix is in three parts:

A1: Interim Conservation Recommendations for the Greater Sage-grouse and Its Habitat, Forest Service Regions 1, 2, and 4

A2: BLM Bi-state Distinct Population Segment of Greater Sage-grouse Interim Management Policies and Procedures

A3: The Humboldt-Toiyabe National Forest Summary of Current Direction and Best Management Practices for the Protection of the Bi-state Sage Grouse

A1: Interim Conservation Recommendations for the Greater Sage-grouse and Its Habitat, Forest Service Regions 1, 2, and 4

Application of Recommendations

In March 2010, the U.S. Fish and Wildlife Service (USFWS) published its petition decision for the greater sage-grouse (hereinafter sage grouse) as "Warranted but Precluded" for listing under the Endangered Species Act (75 FR 13910 – 14014; 03/23/2010). The USFWS identified habitat loss and fragmentation from wildfire, invasive plants, energy and infrastructure development, urbanization, and agricultural conversion as the primary threats to the species throughout its range. Inadequacy of regulatory mechanisms and conservation measures in state and Federal land management plans was also identified as one of the major factors in the USFWS's finding on sage grouse. The Forest Service is engaged in a planning process, which includes NEPA disclosure and public input, to determine whether to amend 20 LRMPs to incorporate sage grouse conservation measures, with a target decision date of September 2014. The goals of this planning process are: to reduce risks to sage grouse and its habitat; maintain ecosystems on which sage grouse depends and to conserve habitat necessary to sustain sage grouse populations to an extent that precludes the need for its listing under the Endangered Species Act.

The purpose of these recommendations is to promote conservation of sustainable sage grouse populations and their habitats by identifying information sources and considerations that should be included in project analysis and decision making taking place before the plan amendment process can be completed. The recommendations incorporate the following principles to protect and conserve sage grouse habitat:

1) Protect remaining expanses of unfragmented habitats;

2) Minimize further loss of fragmented habitat; and

3) Enhance and restore habitat conditions to meet sage grouse life history needs.

These recommendations supplement the recommendations for sage grouse contained in the Chief's letter to Regional Foresters in Regions 1, 2, 4, 5 and 6 for sage grouse and sagebrush

conservation (July 1, 2010)[15]. Another goal is to enhance consistency in management of activities on national forest system land with the Bureau of Land Management (BLM) Instructional Memorandum (IM) No. 2012-043: Greater Sage-grouse Interim Management Policies and Procedures (December 22, 2011). Maintaining and restoring high quality habitat for sage grouse is consistent with the Multiple Use Sustained Yield Act of 1960 and the National Forest Management Act (1976). Development of these recommendations considered the BLM IM and use existing direction in Forest Service Manuals and Handbooks and laws and regulations applicable to the National Forest System.

These recommendations apply only to 20 Forest Service units involved in the LRMP amendment process (identified in appendix 1) and are applicable until interim directives are adopted or until the amendment for the LRMP unit is completed (77 FR 12792; March 2, 2012).

These recommendations apply to proposed Forest Service actions in sage grouse habitat. For the purposes of these recommendations, sage grouse habitat is defined as suitable and occupied sage grouse habitats, consisting of preliminary priority habitat (PPH) and preliminary general habitat (PGH). PPH is comprised of areas identified as having the highest conservation value for maintaining sustainable sage grouse populations. These areas include breeding, late brood-rearing and winter concentration areas. PGH is comprised of areas of occupied seasonal or year-round habitat outside of priority habitat. The Forest Service will work with the BLM and various states to review and validate PPH and PGH maps as they apply to national forest system land, to ensure that all appropriate sage grouse habitats that are seasonally important to sage grouse on local national forest system units are accurately identified.

Sage grouse PPH and PGH data and maps have been developed through a collaborative effort between the BLM and the respective state wildlife agencies. These maps were developed using the best available data, but may change as new information becomes available. Such changes will be coordinated with the state wildlife agencies and USFWS, so that the resulting delineation of PPH and PGH is as accurate as possible. In those instances where the BLM or Forest Service, USFWS, or state wildlife agencies have not completed this delineation, the 75% Breeding Bird Density maps (Doherty et al. 2010[16]) may be used to identify sage grouse habitat on national forest system land. The Forest Service will work collaboratively with BLM, the states, and USFWS to establish the process for updating maps to include the latest PPH and PGH delineations for each state. Forest Service staff may access the PPH and PGH data from BLM, or through the respective state wildlife agencies. The identification of sage grouse habitat should be based upon current maps and inventories at the time decisions are made.

These recommendations do not apply to the Gunnison sage-grouse (*Centrocercus minimus*), Bi-state distinct population segment (DPS) of greater sage-grouse in California and Nevada, and the Washington State DPS of greater sage-grouse, or their habitat. The Bi-state (greater sage-grouse) population is subject to a separate listing decision under the Endangered Species Act (ESA) that includes lands within the Humboldt-Toiyabe and Inyo National Forests, and land under BLM administration, within the State of California and Nevada. A separate planning effort is underway to provide conservation guidance for the bi-state DPS. The Washington State DPS does not have sage grouse habitat on national forest system lands.

[15] USDA, Forest Service. 2010. Sage grouse and Sagebrush Conservation. Letter to Regional Foresters, (R-1, R-2, R-4, R-5, and R-6) from the Chief. File Code 2670. USDA, Forest Service, Wash. D.C. 2pp.
[16] Doherty, K. E., J.D. Tack, J.S. Evans and D. E. Naugle. 2010. Mapping breeding densities of sage-grouse. Sage-grouse: A tool for range-wide conservation planning. BLM Completion Report: Interagency Agreement # L10PG00911.

All Proposed Actions

(FSM 2600 - Wildlife, Fish, and Sensitive Plant Habitat Management; 2610 - Cooperative Relations; 2620 - Habitat Planning and Evaluation)

- Greater sage-grouse is a Regional Forester's designated sensitive species for all Regions subject to these recommendations. All Forest Service units where these recommendations apply are required to evaluate the potential effects of proposed actions on sensitive species in biological evaluations (FSM 2672.4) for environmental analyses on all proposed Forest Service actions.

- When conducting environmental analyses on proposals affecting sage grouse habitat, document (1) short- and long-term objectives and (2) direct, indirect, and cumulative effects relative to sage grouse and its habitat. Evaluate proposed actions in sage grouse habitat in a landscape-scale context to address habitat fragmentation, effective patch size, invasive species presence, and protection of intact sagebrush communities.

- Assure that sage grouse habitats on national forest system lands are maintained or enhanced in accordance with goals and objectives and management guidance in relevant LRMPs and the principles established in these recommendations for so long as they remain in effect.

- Evaluate habitats when they are seasonally relevant for sage grouse. Unless there is contrary site specific information, in general, these dates are associated with major life history requisites:
    - Winter: 11/15 – 3/15
    - Breeding: 3/1 – 5/15
    - Nesting/Early Brood Rearing: 3/15 – 6/30
    - Late Brood Rearing: 7/1 – 9/30
- Incorporate measures to promote the maintenance of large intact sagebrush communities.

- Incorporate measures to limit the expansion or dominance of invasive species in sage grouse habitats.

- Include clear objectives to benefit sage grouse habitat and vegetation conditions in new activity plans and/or project plans. Base vegetation objectives on: (1) native shrub reference states as shown in the State and Transition Model outlined in the applicable Ecological Site Description (ESD) or similar information, where available; (2) published scientific habitat recommendations for specific areas; and (3) local sage grouse working group recommendations.

- Complete habitat inventories/assessments using the Sage Grouse Habitat Assessment Framework (Stiver et al. 2010) in a timely manner so that data are available for consideration in environmental analyses.

- Use integrated approaches to planning, funding, and implementing vegetation and habitat management projects to benefit sagebrush and sage grouse habitats.

- Maintain, enhance and restore sage grouse habitats, populations and connectivity. Give priority to areas determined to have important sage grouse populations, breeding sites or

important seasonal habitats, such as areas identified in the Wyoming Core Area Strategy, state-led and local working group sage grouse plans, conservation agreements, and Forest Plans.

- Collaborate with the USFWS, States, BLM, NRCS and other agencies and landowners to promote consistent management of sagebrush and sage grouse habitats on adjoining lands
- Support and participate in state-wide and local sage grouse working groups for the conservation of sagebrush and sage grouse habitats.
- Work with authorized permittees and lessees to minimize habitat loss, fragmentation, and direct and indirect effects to sage grouse and sage grouse habitat, where adverse effects are occurring or expected to occur.
- National forest system units retain the discretion to not move forward with an action, or to defer making a final decision, until the completion of the LRMP amendment process described in the National Sage-grouse Planning Strategy for the affected area.
- Determine, in coordination with the respective state wildlife agency, whether a proposal that may affect sage grouse or sage grouse habitats would likely have more than minor adverse effects to sage grouse or sage grouse habitat.

Additional Recommendations for Specific Resource Programs for Proposed Actions

Integrated Vegetation Management (FSM 2000-2900 - National Forest Resource Management)

Proposed Authorizations/Activities

- Coordinate, plan, design, and implement vegetation treatments (e.g., pinyon/juniper removal, fuels treatments, green stripping) and associated effectiveness monitoring using an interdisciplinary approach between wildlife, range, fuels management, emergency stabilization, and burned area rehabilitation programs.
- When designing vegetation treatments, consider FSM 2070, Vegetation Ecology, Ecological Site Descriptions (ESDs) assessment and monitoring protocols, and relevant literature (WAFWA 2009[17])
- Enhance the native sagebrush community, including the native shrub reference state in the State and Transition Model, with appropriate shrub, grass, and forb composition identified in the applicable ESD, where available.
- Pursue short-term objectives that include maintaining soil stability, hydrologic function of the disturbed site so resilient plant communities can be established.
- Pursue a long-term objective to maintain resilient native plant communities consistent with expected disturbance cycles. Choose native plant species in accordance with FSM

[17] Western Assoc. of Fish and Wildlife Agencies (WAFWA). 2009. Prescribed Fire as a Management Tool in Xeric Sagebrush Ecosystems: Is it Worth the Risk to sage-grouse? Sage-and Columbian Sharp-tailed Grouse Tech. Comm. White Paper, WAFWA, 22 pp.

2070 Vegetation Ecology and relevant ESDs or similar information, where available, to revegetate sites. The Forest Service Native Plant Materials Policy (FSM 2070) provides guidance on the use of native plants in revegetation projects on national forest system lands. If currently available supplies are limited, use the materials that provide the greatest benefit for sage grouse. When necessary, analyze the use of nonnative species that do not impede long-term re-establishment goals of native plant communities and sage grouse habitat.

- Meet vegetation management objectives that have been set for seeding projects prior to returning the area to authorized uses as prescribed in current Forest or Grassland Plan direction. When treating invasive species, utilize an Integrated Pest Management approach. The Pesticide Use Management and Coordination Policy (FSM 2150) provides agency policy and guidance on the use of pesticides as part of an integrated pest management approach. Additional guidance is also provided in the Pesticide Use Management Handbook (FSH 2109).

- Where pinyon and juniper are encroaching on sagebrush plant communities, design treatments to increase cover of sagebrush and/or understory to (1) improve habitat for sage grouse; and (2) minimize avian predator perches and predation opportunities on sage grouse.

- Improve degraded sage grouse habitats that have become encroached upon by shrubland or woodland species and seek opportunities to restore and expand habitat.

- Identify opportunities for prescribed fire or mechanical treatments only when these management actions are identified as the most appropriate tools to meet fuels/vegetation management objectives, short and long term sage grouse conservation objectives, and the potential for establishment, expansion or dominance of invasive species is minimal. Vegetation treatments should be part of a larger scale strategy to protect and restore sage grouse habitats.

- Before using prescribed fire, analyze the potential expansion or dominance of invasive species as a result of this treatment (See FSM 2900 p.22 #8).

Wildfire Suppression (5130 – Wildland Fire Suppression)

- Threatened, endangered, and sensitive species (including sage grouse) and associated habitats will continue to be a high natural resource priority for National and Geographic Multi-Agency Coordination Groups, whose purpose is to manage and prioritize wildland fire operations on a national and geographic area scope when fire management resource shortages are probable.

- Sage grouse protection and habitat enhancement is a high natural resource priority for the fire management program. A full range of fire management activities and options will be utilized to sustain healthy ecosystems (including sage grouse habitats) and minimize habitat loss within acceptable risk levels to firefighters and the public. Local agency administrators and resource advisors will convey protection priorities to incident commanders and identify areas appropriate for the use of fire retardant, bulldozers, and other suppression resources.

- So as to minimize resource damage, National Forests and Grasslands should identify local personnel qualified to serve as resource advisors, preferably fire-line qualified, capable of advising fire operations in sagebrush habitats.

- Appropriate local unit resource specialist(s) or designated resource advisor will coordinate with unit fire management personnel to identify important sage grouse areas (e.g. leks, winter concentration areas, or brood rearing areas) and develop options and strategies for their protection during wildfire incidents and management response.

Post Fire Restoration (FSM 2523 - Emergency Stabilization – Burned-Area Emergency Response [BAER])

- Conduct BAER consistent with WO Interim Directive 2523 to identify imminent post-wildfire threats to human life and safety, property and critical natural or cultural resources and take immediate action to manage unacceptable risks.

- Assess the need for implementation of burned area rehabilitation in sagebrush habitats relative to habitat value for sage grouse. For example, burns less than 500 acres may be appropriate for BAER if habitat impacted is near an active, well-populated lek.

- In BAER plans, prioritize re-vegetation projects to (1) maintain and enhance unburned intact sagebrush habitat when at risk from adjacent threats; (2) stabilize soils; (3) reestablish hydrologic function; (4) maintain and enhance biological integrity; (5) promote plant resiliency; (6) limit expansion or dominance or invasive species; and (7) reestablish native species.

- Increase post-fire activities through the use of integrated funding opportunities with other resource programs and partners.

- In areas burned within the past 3 years, ensure that effectiveness monitoring outlined in post-fire stabilization and rehabilitation plans continues and is reported. Post-fire stabilization and rehabilitation monitoring should continue until post-fire objectives are met.

Recreation and Non-Recreation (Roads, Powerlines, Pipelines, Non-mineral Energy Development) Special Use Authorizations (SUAs)

Recreation Special Use Authorizations (FSM 2700 - Special Uses Management)

Applications

- Work with applicants to minimize adverse impacts to sage grouse and sage grouse habitat.

- Where a Forest/Grassland line officer determines that it is appropriate to authorize a recreation use in sage grouse habitat, document the reasons for the determination and include measures to be implemented to minimize adverse impacts to sage grouse habitat.

Non-Recreation Special Uses (e.g., Roads, Power Lines, Pipelines, Non-mineral Energy Development) (Special Uses Handbook - FSH 2709.11)

Existing Uses

- Where sage grouse conservation opportunities exist, the authorized officer should work with the holders to include provisions in the operating plan to avoid or minimize impacts on sage grouse habitat from operation and maintenance of the authorized use.

- When amending an authorization or reauthorizing a use, assess the impacts of ongoing use on sage grouse habitat and avoid or minimize such impacts to the extent practicable.

Proposed Uses

- Within 3 kilometers of sage grouse habitat, avoid authorizing placement of overhead powerlines (e.g. by requiring that power lines be buried, where feasible) or other tall structures that provide perch sites for raptors.

- In consultation with the state wildlife agency, determine whether the proposed use likely would likely more than minor adverse effects to sage grouse and sage grouse habitat.

- If the proposed use likely would have more than minor adverse effects on sage grouse habitat:

    - Consider feasible alternatives for siting the use outside of sage grouse habitat.

    - Identify technically feasible best management practices in terms of siting (e,g, burying power lines) that may be implemented, to avoid or minimize impacts on sage grouse or sage grouse habitats.

    - In consultation with the state wildlife agency, develop mitigation measures for construction, maintenance, operation, and reclamation of the proposed use that minimize impacts to sage grouse habitat.

Minerals Management
Leasable Minerals (FSM 2820 - Mineral Leases, Permits, and Licenses)

Proposed Leasing (i.e., a lease has not been issued and, therefore; no valid existing rights)

- Required environmental analyses for leasing in areas affecting sage grouse habitat shall adhere to the applicable policies and procedures outlined in the “All Proposed Actions” section of this ID.

- In that BLM oftentimes utilizes Forest Service environmental analyses to support its independent leasing decisions, Forest Service analyses and associated decisions/recommendations should be consistent with the leasable mineral guidance contained in BLM Instructional Memorandum No. 2012-043.

- Exercise any authority which the Forest Service has with respect to the authorization of lease issuance for National Forest System lands to avoid or minimize adverse effects to sage grouse and sage grouse habitat.

Forest Service Authorizations Relating to Existing Leases (i.e., the lease has been issued and valid existing rights have been established)

- For existing Forest Service authorizations (i.e., a permit such as a special use permit, a road use permit or a surface use plan of operations which has been issued) in areas where sage grouse conservation opportunities exist, the Forest/Grassland should work in cooperation with the operator to avoid and minimize effects on sage grouse and sage grouse habitat.

- For proposed/pending Forest Service authorizations relating to an existing lease (i.e., a proposed permit such as a special use permit, a road use permit or a surface use plan of operations) in areas where sage grouse conservation opportunities exist, require measures to avoid or minimize adverse effects to sage grouse and sage grouse habitat.

- Exercise any authority which the Forest Service has with respect to the conduct of operations on an existing leasehold to avoid or minimize adverse effects to sage grouse and sage grouse habitat.

Locatable Minerals (FSM 2810 - Mining Claims)

Ongoing Authorizations/Activities (i.e., existing operations conducted under a Notice of Intent to Operate or a Plan of Operations)

- When ongoing operations are causing or will likely cause significant disturbance of surface resources not authorized by an approved plan of operations, units should utilize the authority provided by 36 CFR 228.4(a)(4) to require an operator to submit a plan of operations for approval; or, if appropriate, the authority provided by 36 CFR 228.4(d) to require an operator to supplement an approved plan of operations.

- If ongoing operations authorized by a plan of operations are causing unforeseen significant disturbance of surface resources, units should exercise the authority provided in 36 C.F.R. 228.4(e) concerning modifying the plan of operations.

Proposed Authorizations/Activities (i.e., new Notices of Intent to Operate or Plans of Operation)

- Ensure that new notices of intent adequately describe proposed operations to assess whether or not significant disturbance of National Forest System surface resources, including sage grouse and sage grouse habitat, is likely. When the authorized officer determines that the operations described by a notice of intent to operate are likely to cause significant disturbance of National Forest System surface resources, require the submission of a proposed plan of operations and advise the operator that the operations cannot be conducted until the plan of operations is approved.

- Require that new plans of operation include measures to avoid or minimize adverse effects to sage grouse and sage grouse habitat.

Salable Minerals (FSM 2850 - Mineral Materials)

Existing Authorizations (i.e., a contract, prospecting permit or permit has been issued leading to the creation of valid existing rights)

- When operating plans have been approved, work with the holders of the authorization to develop reasonable conditions such as siting/design of infrastructure, timing of

operations, or reclamation standards that will avoid or minimize effects to sage grouse and sage grouse habitat.

- When proposed operating plans are submitted, require reasonable conditions that will avoid or minimize effects to sage grouse and sage grouse habitat.

Proposed Authorizations

- Require that authorizations provide for the development of operating plans which include measures to avoid or minimize adverse effects to sage grouse and sage grouse habitat.

Grazing Administration and Rangeland Management (FSM 2200 – Rangeland Management)

Ongoing Allotment Administration

- When developing drought contingency plans, evaluate the season of use, stocking rate, and pasture rotation schedules and adjust in accordance with permit terms and applicable regulations to promote retention of herbaceous composition and structure to meet sage grouse habitat requisites.

- Continue to coordinate with other Federal agencies, state agencies, and non-Federal partners. Implement the 2010 Memorandum of Understanding between the BLM, NRCS, FWS, and Forest Service for enhancing sage grouse habitat through grazing practices.

- Conduct effectiveness monitoring of grazing activities to ensure that current management is meeting sage grouse habitat objectives as described in Allotment Management Plans.

Proposed Authorizations/Activities

- When several small or isolated allotments occur within a watershed or delineated geographic area, strive to evaluate all of the allotments together. Pursue opportunities to incorporate multiple allotments under a single management plan/strategy where incorporation would result in enhancing sage grouse or sage grouse habitat.

- Coordinate BMPs and vegetation objectives with BLM, NRCS and adjacent private land owners for consistent application across all jurisdictions as described in NRCS's National Sage Grouse Initiative.

- When revising allotment or grazing management through an environmental analysis, utilize an interdisciplinary team, as practicable, to identify reasonable sage grouse habitat objectives and evaluate a range of reasonable alternatives to accomplish those objectives.

- Incorporate management objectives that that promote the growth and persistence of native shrubs, grasses, and forbs beneficial to sage grouse. Utilize Ecological Site Descriptions or other State and Transition Models, where they are available, to develop realistic objectives.

Wild Horse and Burro Management (FSM 2260 - Wild Free-Roaming Horses and Burros)

- Manage wild horse and burro population levels within established appropriate management levels (AML).

- Wild Horse and Burro Territories within sage grouse habitat should receive priority for removal of excess Animals, as appropriate. This includes those territories where AML has been set at zero and animals are present.

Fences (FSM 2240 – Range Improvements)

- Evaluate the need for proposed fences, especially those within 1.25 miles[18] of leks that have been active within the past 5 years and in movement corridors between leks and roost locations. Apply mitigation (e.g., proper siting, marking, post and pole construction) to avoid or minimize potential impacts to sage grouse as determined in cooperation with the respective state wildlife agency.

- Identify and remove fences not needed for resource management, particularly those within 1.25 miles of leks.

- To improve visibility, mark existing fences within 1.25 miles3 of a lek that have been identified as a collision risk. Fences posing higher risks to sage grouse include fences:

    - On flat topography;

    - Where spans exceed 12 feet between T-posts;

    - Without wooden posts; or

    - Where fence densities exceed 1.6 miles of fence per section (640 acres).

Water Developments (applicable to all programs) (FSM 2240 – Range Improvements)

Proposed Authorizations/Activities

- Include escape ramps and a mechanism, such as a float or shut-off valve, to control the flow of water in tanks and troughs.

- Carefully consider available design criteria or treatments (e.g., *Bacillus thuriengensis*) for water development structures in a manner that minimizes potential for production of mosquitoes that may carry West Nile virus, where the disease is a known mortality factor.

Travel Management (FSM 7700)

Ongoing Authorizations/Activities

- Follow existing guidance in Forest Service Travel Management Plans implemented through the Motor Vehicle Use Map (MVUM). In annual reviews and updates of MVUMs, consider effects to sage grouse and sage grouse habitat.

- Consider using emergency closures of designated routes if use disturbs important sage grouse habitats (i.e., breeding, brood-rearing, winter).

[18] Stevens, B.S. 2011. Impacts of Fences on sage-grouse in Idaho: Collision, Mitigation, and Spatial Ecology (Master's Thesis). University of Idaho, Moscow, Idaho.

Realty Actions (e.g., Land Exchanges, Transfers, and Sales) (FSM 5400 - Landownership)

It is Forest Service policy that where a Forest or Grassland determines that it is appropriate to implement a public land disposal action, the following process must be followed:

- The Forest Service will document the reasons for its determination and implement measures to minimize impacts to sage grouse habitat.

Vegetation and Resource Monitoring

- Monitor activities and projects using the BLM core indicators and protocols (e.g., BLM Assessment, Inventory, and Monitoring Strategy) to ensure that the objectives are being met. Supplement data collection, as necessary, with other programmatic information for the site to demonstrate that objectives are being met.
- Until further direction is provided, and within the range of the sage grouse, collect and report the following for inclusion in the appropriate Forest Service database (e.g., WFRP, INFRA, etc.) which will be reported to the FWS as requested:
    - Miles, acres, and/or number of structures (e.g., fences, water developments, well pads, gravel pits, roads) removed, installed, relocated, decommissioned, modified, or mitigated to benefit sage grouse and sage grouse habitat;
    - Number of Forest Service use authorizations issued or deferred and the associated acres where changes in management were implemented to benefit sage grouse and sage grouse habitat;
    - Acres where the Forest Service implemented changes in use in order to improve sage grouse habitat in cooperation with other Federal or state agencies;
    - Acres of sage grouse habitat altered by wildland fire, acres treated after fire, and acres not treated after fire that were in need of treatment;
    - Acres of sage grouse habitat altered by fuels treatment projects and how those treatments affected sage grouse habitat;
    - Acres of vegetation treated to benefit sage grouse habitat; and number of allotments assessed for land health standards, with associated acres, according to table 7A of the Rangeland Inventory, Evaluation, and Monitoring Report.

Forest/Grassland Land and Resource Management Plans Proposed for Revision or Amendment

- Ashley (UT)
- Beaverhead-Deerlodge (MT)
- Boise (ID)
- Bridger-Teton (WY)
- Caribou (ID)
- Challis (ID)
- Curlew (ID)

- Dixie (UT)
- Fishlake (UT)
- Humboldt (NV)
- Manti-LaSal (UT)
- Medicine-Bow
- Routt
- Salmon (ID)
- Sawtooth (ID)
- Targhee (ID)
- Thunder Basin
- Toiyabe (NV)
- Uinta (UT)
- Wasatch-Cache (UT)

A2: BLM Bi-state Distinct Population Segment of Greater Sage-grouse Interim Management Policies and Procedures

Note: This document has been scanned in its original format and begins on the following page.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Nevada State Office
1340 Financial Boulevard
Reno, Nevada 89502-7147
http://www.blm.gov/nv
December 3, 2012

In Reply Refer To:
1110 (170/200/300/400) P

EMS TRANSMISSION 12/05/12
Instruction Memorandum: No. NV-2012-061
Expires: 09/30/2013

To: Carson District and Tonopah Field Office

From: State Director

Subject: Bi-State Distinct Population Segment of Greater Sage-Grouse Interim Management Policies and Procedures

Program Areas: All Programs.

Purpose: This Instruction Memorandum (IM) provides interim conservation policies and procedures to Bureau of Land Management (BLM) field officials to be applied to ongoing and proposed authorizations and activities that affect the Bi-state Distinct Population Segment (DPS) of Greater Sage-Grouse *(Centrocercus urophasianus)* (hereafter referred to as the Bi-State DPS) and its habitat. This direction ensures that interim conservation policies and procedures are implemented when the Carson District or Tonopah Field Office authorizes or carries out activities on public land during the current revision of the Districts' Resource Management Plans (RMP). These revisions will develop and decide how to best incorporate long-term conservation measures for Bi-State DPS on lands within the Carson City District and Tonopah Field Office. This interim direction promotes sustainable Bi-State DPS populations and conservation of its habitat while not foreclosing any future options before the planning process can be completed. The goal of amending or revising BLM Land Use Plans with Bi-State DPS conservation direction is to ensure appropriate regulatory mechanisms are in place to ensure the conservation of this DPS.

This IM supplements the direction for Bi-State DPS contained in the BLM Washington Office (WO) IM 2010-071 (*Gunnison and Greater Sage-Grouse Management Considerations for Energy Development*) and is consistent with WO-IM-2011-138 (*Sage-Grouse Conservation Related to Wildland Fire and Fuels Management*). The Bi-state DPS habitat managed by the Carson City District and Tonopah Field Office in California and Nevada is specifically covered by this IM and shown on the attached Bi-State Sage-Grouse Preliminary Priority Habitat Map.

The 2010 U.S. Fish and Wildlife Service (FWS) findings on petitions to list the Bi-State DPS (petition decision) (75 FR 13910 – 14014; 03/23/2010) identified habitat conversion and fragmentation from wildfire, invasive plants, energy and infrastructure development, urbanization, and agricultural conversion as the primary threats to the species throughout its range. Through this IM, the BLM is providing interim conservation policies and procedures across multiple programs while the BLM conducts revisions to RMPs. Maintaining and restoring high quality habitat for the Bi-State DPS is consistent with the BLM multiple-use and sustained-yield management direction of the Federal Land Policy and Management Act (FLPMA).

Policy/Action: As summarized in the BLM's National Strategy, emphasis for protecting and managing habitats of this Greater Sage-Grouse Distinct Bi-State Population Segment incorporates the following principles:

1) Protection of intact habitats;
2) Minimization of habitat loss and fragmentation; and
3) Management of habitats to maintain, enhance, or restore conditions that meet Bi-State DPS life history needs.

To provide guidance to field offices to promote these principles, this IM transmits policies and procedures that apply to ongoing and proposed BLM actions, including use authorizations, within Preliminary Priority Habitat (PPH) for the Bi-State DPS. PPH comprises areas that have been identified as having the highest conservation value to maintaining a sustainable Bi-State DPS. These areas would include occupied seasonal or year-round habitat in addition to breeding, late brood-rearing, and winter concentration areas. These areas have been identified by the CA and NV BLM in coordination with respective state wildlife agencies as the habitat crosses the state line (see attached map).

No Preliminary General Habitat has been identified for the Bi-State DPS. This is due to the overall lack of high quality sage-grouse habitat and scarcity of telemetry information to distinguish between priority and general habitat.

The policies and procedures identified in this IM are designed to minimize habitat loss in and will advance the BLM's objectives to maintain or restore habitat to desired conditions by ensuring that field offices analyze and document impacts to PPH and coordinate with the State and the Fish and Wildlife Service when issuing the decisions described below. These policies and procedures are in addition to, and do not replace, more protective measures in existing LUPs. The direction in this IM is time-limited for the planning area where the Distinct Bi-State Population Segment of Greater Sage-Grouse occurs. The conservation policies and procedures described in this IM will be applied until the appropriate regulatory mechanisms are in place to ensure the conservation of this DPS.

Preliminary priority habitat (PPH) data and maps for the Bi-State Distinct Population Segment were developed through a collaborative effort by the Bi-State DPS Technical Advisory Committee (TAC) that consisted of representatives from CA and NV BLM, USFS, USGS, USFWS and the respective state wildlife agencies. Copies of the map will be stored at the BLM National Operations Center, USGS Western Ecological Research Center, California Department of Fish and Game (CDFG), and Nevada Department of Wildlife (NDOW). The PPH areas were derived from the combination of modeling resource selection functions and calculating utilization distributions from sage-grouse telemetry data collected over a 7-year period. The

methods to produce these maps are scientifically supported and used the best available information. The maps will be updated as new data becomes available. Such changes would be science-based and coordinated with the TAC for the Bi-State so that the resulting delineation of PPH provides for sustainable populations. The TAC will establish the process for updating files to include the latest PPH delineations for each state. This information will assist in applying the interim conservation policies and procedures identified below. As LUPs are amended or revised, the BLM District or Field Offices will be responsible for coordinating with NDOW and CDFG to use the newest delineation of habitat. BLM staff may access the data, using the following link: \\blm\dfs\loc\EGIS\NV\GIS_Work\Multi-District_Project\RMP\BiState_RMP_Amend. Non-BLM personnel may access these maps through NDOW. Habitat in California but managed by the Carson City District will be maintained at the Carson City Field Office.

The BLM will continue to work with its partners including the US Forest Service, Western Association of Fish and Wildlife Agencies (WAFWA), FWS, U.S. Geological Survey (USGS), Natural Resource Conservation Service (NRCS), and the Farm Services Agency (FSA) within the framework of the Sagebrush Memorandum of Understanding (2008) and the WAFWA *Greater Sage-Grouse Comprehensive Conservation Strategy* (2006).

Interim Conservation Policies and Procedures for "Preliminary Priority Habitat"
Through these policies and procedures, BLM seeks to maintain, enhance, or restore conditions for the Bi-State DPS and its habitat.

Integrated Vegetation Management
Proposed Authorizations/Activities

- Evaluate land treatments (including Bi-State population habitat treatments) in a landscape-scale context to address habitat fragmentation, effective patch size, invasive species presence, and protection of intact sagebrush communities. Coordinate land treatments with adjacent land owners to avoid any unintended negative landscape effects to Bi-State DPS.
- When designing vegetation treatments, reference Ecological Site Descriptions (ESD), where available; the BLM *Integrated Vegetation Management Handbook* (H-1740-2); and a white paper developed by the Western Association of Fish and Wildlife Agencies entitled, *Prescribed Fire as a Management Tool in Xeric Sagebrush Ecosystems: Is it Worth the Risk to Sage-Grouse?*
- Coordinate, plan, design, and implement vegetation treatments (e.g., pinyon/juniper removal, fuels treatments, green stripping) and associated effectiveness monitoring between Resources, Fuels Management, Emergency Stabilization, and Burned Area Rehabilitation programs to:
    - Promote the maintenance of large intact sagebrush communities;
    - Limit the expansion or dominance of invasive species, including cheatgrass;
    - Maintain or improve soil site stability, hydrologic function, and biological integrity; and
    - Enhance the native plant community, including the native shrub reference state in the *State and Transition Model*, with appropriate shrub, grass, and forb composition identified in the applicable ESD where available.
- When conducting National Environment Policy Act (NEPA) analysis for vegetation treatments, document your analysis of (1) short- and long-term objectives and (2) direct, indirect, and cumulative effects of treatment types on Bi-State DPS and its habitat.

- Pursue short-term objectives that include maintaining soil stability and hydrologic function of the disturbed site so a resilient plant community can be established.
- Pursue a long-term objective to maintain resilient native shrub-steppe communities. Choose native plant species outlined in ESDs, where available, to revegetate sites. If currently available supplies are limited, use the materials that provide the greatest benefit for Bi-State DPS. When necessary, analyze the use of non-native species that do not impede long-term reestablishment goals of native plant communities and Bi-State DPS habitat.
- Meet vegetation management objectives that have been set for seeding projects prior to returning the area to authorized uses, specifically livestock grazing. This generally takes a minimum of two growing seasons (see Handbook H-1742, *Emergency Fire Rehabilitation Handbook*). When treating invasive species, use the standard operating procedures and best management practices outlined in the *2007 Vegetation Treatments Using Herbicides on BLM Lands in 17 States Environmental Impact Statement* and applicable practices found in its accompanying *Biological Assessment*.
- Where pinyon and/or juniper trees are encroaching on sagebrush plant communities, design treatments to increase cover of sagebrush and/or understory to: (1) improve habitat for Bi-State DPS; and (2) minimize avian predator perches and predation opportunities on Bi-State DPS.
- Implement management actions, where appropriate, to improve degraded Bi-State DPS habitats that have become encroached upon by shrubland or woodland species.
- Identify opportunities for prescribed fire; including where prescribed fire has been identified as the most appropriate tool to meet fuels management objectives and Bi-State DPS conservation objectives, and the potential expansion or dominance of invasive species has been determined to be minimal through an invasive species risk determination for the treatment project (see BLM Manual Section 9015). Before using prescribed fire, field offices must analyze the potential expansion or dominance of invasive species as a result of this treatment. Refer to Western Association of Fish and Wildlife Agencies entitled, *Prescribed Fire as a Management Tool in Xeric Sagebrush Ecosystems: Is it Worth the Risk to Sage-Grouse?*

Wildfire Emergency Stabilization and Burned Area Rehabilitation

Both Existing and Proposed Authorizations/Activities

- In Emergency Stabilization and Burned Area Rehabilitation plans, prioritize re-vegetation projects to (1) maintain and enhance unburned intact sagebrush habitat when at risk from adjacent threats; (2) stabilize soils; (3) reestablish hydrologic function; (4) maintain and enhance biological integrity; (5) promote plant resiliency; (6) limit expansion or dominance of invasive species; and (7) reestablish native species.
- Increase post-fire activities through the use of integrated funding opportunities with other resource programs and partners.
- In areas burned within the past 5 years, ensure that effectiveness monitoring outlined in post-fire stabilization and rehabilitation plans continues and report the results as outlined in WO-IM-2010-195. Post-fire stabilization and rehabilitation monitoring should continue until post-fire objectives are met.

Wildfire Suppression and Fuels Management

Existing Authorizations/Activities

- Threatened, endangered, and sensitive species (including Bi-State DPS) and associated habitats will continue to be a high natural resource priority for National and Geographic

Multi-Agency Coordination Groups, whose purpose is to manage and prioritize wildland fire operations on a national and geographic area scope when fire management resource shortages are probable.

- Bi-State DPS protection and habitat enhancement is a high priority for the fire management program. A full range of fire management activities and options will be utilized to sustain healthy ecosystems (including Bi-State DPS habitats) within acceptable risk levels. Local agency administrators and resource advisors will convey protection priorities to incident commanders.
- Comply with the policies established in WO-IM-2011-138 (Sage-grouse Conservation Related to Wildland Fire and Fuels Management) or successor guidance, regarding suppression operations and fuels management activities.
- Where prescribed fire has been identified as the most appropriate tool to meet fuels management and Bi-State DPS conservation objectives, the potential expansion or dominance of invasive species must be evaluated and determined to be minimal through an invasive species risk determination for the treatment project (see BLM Manual Section 9015).

Rights-of-Way (ROW) (e.g., Renewable Energy Projects, Roads, Powerlines, Pipelines)
Existing Authorized ROW (i.e., permit has been issued and the project may have been constructed)

- Where Bi-State DPS conservation opportunities exist, BLM District and Field offices should work in cooperation with rights-of-way (ROW) holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effects on Bi-State DPS and its habitat.
- When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to Bi-State DPS habitat and minimize such impacts to the extent allowed by law.

Pending and Future ROW Applications (i.e., permit application has not been received or has been received and is being processed)

- Conduct pre-application meetings for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February 7, 2011).
- For pending applications, assess the impact of the proposed ROW on Bi-State DPS and its habitat, and implement the following:
    - Ensure that reasonable alternatives for siting the ROW outside of the PPH or within a designated utility/transportation corridor are considered and analyzed in the NEPA document.
    - Identify technically feasible best management practices, conditions, etc. (e.g., siting, burying powerlines) that may be implemented in order to eliminate or minimize impacts.
- For ROWs where the total project disturbance from the ROW and any connected action is less than 1 linear mile, or 2 acres of disturbance, develop mitigation measures related to construction, maintenance, operation, and reclamation activities that, as determined in cooperation with the respective state wildlife agency, would cumulatively maintain or enhance Bi-State DPS habitat.
- For ROW applications where the total project disturbance from the ROW and any connected action is greater than 1 linear mile or 2 acres of disturbance, it is BLM policy

that where a field office determines that it is appropriate to authorize a ROW, the following process must be followed:

- The BLM will document the reasons for its determination and require the ROW holder to implement measures to minimize impacts to Bi-State DPS habitat.
- In addition to considering opportunities for onsite mitigation, the BLM will, to the extent possible, cooperate with project proponents to develop and consider implementing appropriate offsite mitigation that the BLM, coordinating with the respective state wildlife agency, determines would avoid or minimize habitat and population-level effects (Refer to WO-IM-2008-204, Off-Site Mitigation). When developing such mitigation, the BLM should consider compensating for the short-term and long-term direct and indirect loss of Bi-State DPS and its habitat.
- Unless the BLM determines, in coordination with the respective state wildlife agency, that the proposed ROW and mitigation measures would cumulatively maintain or enhance Bi-State DPS habitat, the proposed ROW decision must be forwarded to the Bi-State Technical Working Group. If this group is unable to make a recommendation, the proposed action is elevated to the Executive Oversight Committee. If this group is unable to agree on the appropriate mitigation for the proposed ROW, then the proposed decision must be forwarded to the BLM Nevada State Director for a final decision.

- Field offices retain the discretion to reject or deny a ROW application, where appropriate, or defer making a final decision on an application until the completion of the LUP process described in the *National Greater Sage-Grouse Planning Strategy* for the affected area.

Leasable Minerals (Energy and Non-energy)

Fluid Mineral Leasing (i.e., oil, gas, and geothermal)
It is BLM policy that where a field office determines that it is appropriate to authorize a proposed leasing decision, the following process must be followed:

- The BLM will document the reasons for its determination and require the lessee to implement measures to minimize impacts to Bi-State DPS habitat.
- In addition to considering opportunities for onsite mitigation, the BLM will consider whether it is appropriate to condition the lease with a requirement for offsite mitigation that the BLM, coordinating with the respective state wildlife agency, determines would avoid or minimize habitat and population-level effects (refer to WO-IM-2008-204, Off-Site Mitigation).
- Unless the BLM determines, in coordination with the respective state wildlife agency, that the proposed lease and mitigation measures would cumulatively maintain or enhance Bi-State DPS habitat, the proposed lease decision must be forwarded to the Bi-State DPS Technical Working Team for their review. If this group is unable to agree on the appropriate mitigation for the proposed lease, then the proposed decision must be forwarded to the EOC, when appropriate, for its review. If the EOC is unable to agree on the appropriate mitigation for the proposed lease, they will coordinate with and brief the BLM State Director for a final decision in absence of consensus.
- Exception: Where drainage is likely or the lands are designated as No Surface Occupancy (NSO) in the existing LUP, the BLM may issue new leases with an NSO stipulation. The NSO stipulation will also have appropriate exception, waiver, and modification criteria. **Note:** A Controlled Surface Use stipulation is not an appropriate substitution for an NSO stipulation.

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- Field offices retain the discretion to not move forward with a nomination or defer making a final decision on a leasing decision until the completion of the appropriate LUP for the affected area.

- Authorizations on Existing Leases (i.e., the lease has been issued and valid existing rights have been established)
  - Where Bi-State DPS conservation opportunities exist, work in cooperation with operators to minimize habitat loss, fragmentation, and direct and indirect effects to Bi-State DPS and its habitat.
  - Issue Written Orders of the Authorized Officer (43 CFR 3161.2) requiring reasonable protective measures consistent with the lease terms where necessary to avoid or minimize effects to Bi-State DPS populations and its habitat.

- Proposed Pending Authorizations (i.e., permit application has not been received or has been received and is being processed)
  It is BLM policy that where a field office determines that it is appropriate to issue a proposed authorization, the following process must be followed:
  - Where the BLM has not issued a permit for development, design future conditions or restrictions to minimize adverse effects to Bi-State DPS and its habitat (e.g., Best Management Practices (BMP), noise limitations, seasonal restrictions, minimization of habitat fragmentation, improved reclamation standards, proper siting/designing infrastructure, restoring habitat) prior to permit approval. These measures may be in addition to and more protective or restrictive than the stipulations and restrictions identified in approved LUPs, when reasonable (43 CFR 3101.1-2), supported by science, and analyzed through the NEPA process.
  - Consider suspending non-producing leases in instances where mitigation would not adequately protect the integrity of Bi-State DPS habitat until the BLM amends or revises the LUPs. Consistently apply protective measures to split estate lands.
  - In areas where Bi-State DPS populations have been substantially diminished, and where few birds remain, include actions in the authorization (e.g., siting/designing infrastructure, hastened habitat restoration) that will minimize habitat loss and promote restoration of habitat when development activities cease.
  - In addition to considering opportunities for onsite mitigation, the BLM will, to the extent possible, cooperate with project proponents to develop and consider implementing appropriate offsite mitigation that the BLM, coordinating with the respective state wildlife agency, determines would avoid or minimize habitat and population-level effects (refer to WO-IM-2008-204, Off-Site Mitigation). When developing such mitigation, the BLM should consider compensating for the short-term and long-term direct and indirect loss of Bi-State DPS and its habitat.
  - For geophysical exploration activities, include seasonal timing limitations and BMPs as permit conditions of approval to eliminate or minimize surface-disturbing and disruptive activities within nesting and brood-rearing habitat and winter concentration areas.
  - Ensure authorizations under Onshore Oil and Gas Order No. 7 (Disposal of Produced Water) consider the potential impacts to Bi-State DPS from West Nile virus and develop appropriate mitigation measures.

Grazing Permit/Leases Issuance/Grazing Management

Grazing can have localized adverse effects on Bi-State DPS habitat depending on the condition of the habitat and the grazing practices used. Depending on design and application, grazing practices can also be used as a tool to protect intact sagebrush habitat and increase habitat extent and continuity which is beneficial to Bi-State DPS and its habitat. Given the potential financial constraints in addressing the primary threats identified by the FWS, enhanced management of livestock grazing may be the most cost-effective opportunity in many instances to improve Bi-State DPS habitat on public lands. Utilize the best available science in defining seasonal Bi-State DPS habitat requisites relative to potential impacts of livestock grazing on habitat features (e.g. Connelly et al. 2000, Hagen et al. (2007, Knick and Connelly (eds.) 2010.

To promote grazing practices that will protect PPH and minimize adverse effects on Bi-State DPS and its habitat, the BLM will implement the following:

Existing Authorizations and? Activities

- If periods of drought occur, evaluate the season of use and stocking rate and, adjust through coordination, annual operation plans and billings processes.
- Continue to coordinate with other Federal agencies, state agencies, and non-Federal partners. Leverage funding to implement habitat projects and implement the recent Memorandum of Understanding between the BLM, NRCS, FWS for enhancing PPH through grazing practices.
- Continue to prioritize use, supervision and effectiveness monitoring of grazing activities to ensure compliance with permit conditions and that progress is being made on achieving land health standards.
- Continue to evaluate existing range improvements (e.g., fences, watering facilities) associated with grazing management operations for impacts on Bi-State DPS and its habitat. Where appropriate, modify range structural improvements that are having adverse effects on Bi-State DPS (e.g. fence markers).

Proposed Authorizations/Activities – Permit/Lease Renewal/Issuance

- When several small or isolated allotments occur within a watershed or delineated geographic area, evaluate all of the allotments together. Prioritize this larger geographic area in the context of PPH areas for processing permits/leases for renewal.
- Coordinate BMPs and vegetative objectives with NRCS for consistent application across jurisdictions where the BLM and NRCS have the greatest opportunities to benefit Bi-State DPS, particularly as it applies to the NRCS's National Sage-Grouse Initiative (http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/farmbill/initiatives/?&cid=steldevb1027671). See the 2010 Four-Agency MOU singed by the BLM, Forest Service, NRCS and FWS for further guidance in management collaboration.
- Pursue opportunities to incorporate multiple allotments under a single management plan/strategy where incorporation would result in enhancing Bi-State DPS populations or its habitat as determined in coordination with respective state wildlife agency.
- Use the process in WO-IM-2009-007, Process for Evaluating Status of Land Health and Making Determinations of Causal Factors When Land Health Standards Are Not Achieved, to identify appropriate actions where current livestock grazing management has been identified as a causal factor in not meeting Land Health Standards (43 CFR 4180).
- Evaluate progress towards meeting standards that may affect the Bi-State DPS or its habitat prior to authorizing grazing on an allotment that was not achieving land health

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standards in the last renewal cycle, and livestock was a significant causal factor. Where available, use current monitoring data to identify any trends (e.g., progress) toward meeting the standards. Where monitoring data are not available or inadequate to determine whether progress is being made toward achieving Land Health Standards, an interdisciplinary team should be deployed as practicable to conduct a new land health assessment. The NEPA analysis for the permit/lease renewal must address a range of reasonable alternatives including alternatives that improve Bi-State DPS habitat.

- If livestock grazing was the cause of not achieving land health standards that have potential to impact Bi-State DPS or its habitat in the last permit renewal cycle, an interdisciplinary team should be deployed as practicable to conduct a new land health evaluation to determine if the allotment is making progress and if livestock grazing remains a casual factor.
- Plan and authorize livestock grazing and associated range improvement projects on BLM managed lands in a way that maintains and/or improves Bi-State DPS and its habitat. Analyze through a reasonable range of alternatives any direct, indirect, and cumulative effects of grazing on Bi-State DPS and its habitats through the NEPA process:
    - Incorporate available site information when evaluating existing resource condition and developing resource solutions,
    - Incorporate management practices that will provide for adequate residual plant cover (e.g., residual grass height) and diversity in the understories of sagebrush plant communities as part of viable alternatives. When addressing residual cover and species diversity, refer to the ESD and "*State and Transition Model*," where they are available, to guide the analysis.
    - Evaluate and implement grazing practices that promote the growth and persistence of native shrubs, grasses, and forbs. Grazing practices include kind and numbers of livestock, distribution, seasons of use, and livestock management practices needed to meet both livestock management and Bi-State DPS habitat objectives.
    - Evaluate the potential risk to Bi-State DPS and its habitats from existing structural range improvements. Address those structural range improvements identified as posing a risk during the renewal process.
    - Balance grazing between riparian habitats and upland habitats to promote the production and availability of beneficial forbs to the Bi-State DPS in meadows, mesic habitats, and riparian pastures for Bi-State DPS use during nesting and brood-rearing. Consider changing livestock use in riparian/wetland areas to before or after the summer growing season to ensure habitat availability for Bi-State DPS when these habitats are important to broods.
- To ensure that the NEPA analysis for permit/lease renewal has a range of reasonable alternatives:
    - Include at least one alternative that would implement a deferred or rest-rotation grazing system, if one is not already in place and the size of the allotment warrants.
    - Include a reasonable range of alternatives (e.g., no grazing or a significantly reduced grazing alternative, current grazing alternative, increased grazing alternative, etc.) to compare the impacts of livestock grazing on Bi-State DPS habitat and land health from the proposed action.
    - If land treatments and/or range improvements are the primary action for achieving land health standards for Bi-State DPS habitat maintenance or enhancement, clearly display the effects of such actions in the alternatives analyzed.

Fences (Applicable to all programs)

- Evaluate the need for proposed fences, especially those within PPH that have been active within the past 5 years and in movement corridors between leks and roost locations. Consider deferring fence construction unless the objective is to benefit Bi-State DPS habitat, improve land health, promote successful reclamation, protect human health and safety, or provide resource protection. If the BLM authorizes a new fence, then, where appropriate, apply mitigation (e.g., proper siting, marking, post and pole construction, let-down fences) to minimize or eliminate potential impacts to Bi-State DPS as determined in cooperation with the respective state wildlife agency.
- To improve visibility, mark existing fences that have been identified as a collision risk. Prioritizing fences within PPH, fences posing higher risks to Bi-State DPS include those:
    - On flat topography;
    - Where spans exceed 12 feet between T-posts;
    - Without wooden posts; or
    - Where fence densities exceed 1.6 miles of fence per section (640 acres).[3]

Water Developments (applicable to all programs)

Proposed Authorizations/Activities

- NEPA analysis for all new water developments must assess impacts to Bi-State DPS and its habitat.
- Install escape ramps and a mechanism such as a float or shut-off valve to control the flow of water in tanks and troughs.
- Design structures, or control water to developments, in a manner that minimizes potential for production of mosquitoes which may carry West Nile virus.

Special Recreation Permits

Existing Authorization/Activities

- Work with permittees to avoid or minimize effects to Bi-State DPS and its habitat.
- Evaluate existing Special Recreation Permits (SRP) for adverse effects to Bi-State DPS and modify or cancel the permit, as appropriate, to avoid or minimize effects of habitat alterations or other physical disturbances to Bi-State DPS (e.g., breeding, brood-rearing, migration patterns, or winter survival).
- Implement any necessary habitat restoration activities after SRP events. Restoration activities must be consistent with Bi-State DPS habitat objectives as determined by the BLM field office in collaboration with the respective state wildlife agency.

Proposed Authorizations/Activities

- Work with permit applicants to avoid impacts to Bi-State DPS and its habitat.
- It is BLM policy that where a field office determines that it is appropriate to authorize a proposed special recreation permit, the following process must be followed:
    - The BLM will document the reasons for its determination and require the permittee to implement measures to minimize impacts to Bi-State DPS habitat.
    - In addition to considering opportunities for onsite mitigation, the BLM will consider whether it is appropriate to condition the permit with a requirement for offsite mitigation that the BLM, coordinating with the respective state wildlife agency, determines would avoid or minimize habitat and population-level effects (refer to WO-IM-2008-204, Off-Site Mitigation).

  - Unless the BLM determines, in coordination with the respective state wildlife agency, that the proposed permit and mitigation measures would cumulatively maintain or enhance Bi-State DPS habitat, the proposed special recreation permit decision must be forwarded to the Bi-State DPS Technical Team for their review. If this group is unable to agree on the appropriate mitigation for the proposed special recreation permit, then the proposed decision must be forwarded to the EOC, for its review. If the EOC is unable to agree on the appropriate mitigation for the proposed special recreation permit, the EOC will coordinate with and brief either the BLM State Director or designee for a final decision in absence of consensus.
- Field offices retain the discretion to not move forward with a special recreation permit application or defer making a final decision on a special recreation permit decision until the completion of the appropriate LUP process for the affected area.

Recreation Sites

- Use conservation measures to avoid impacts to Bi-State DPS at existing recreation sites.
- Consider closing recreational sites either seasonally or permanently and restricting traffic to avoid or minimize effects of habitat alterations or other physical disturbances to Bi-State DPS (e.g., breeding, brood-rearing, migration patterns, or winter survival).

Travel Management

Existing Authorizations/Activities

- Evaluate authorizations and use to determine if continued use would result in habitat alterations or population disturbances that impair life history functions of the Bi-State DPS, such as breeding, brood-rearing, migration patterns, or winter survival, as appropriate.
- Place a high priority on closing and reclaiming unauthorized motor vehicle routes that cause habitat alterations or population disturbance.
- Limit and enforce motorized vehicle use to existing or designated roads, primitive roads, and trails and seasons of use to prevent habitat loss or population disturbance that impair life history functions of the Bi-State DPS, such as breeding, migration patterns, or winter survival.

Proposed Authorizations/Activities

- Route construction should be limited to realignments of existing or designated routes to enhance other resources only if that realignment conserves or enhances Bi-State DPS habitat. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new road constructed will be built to the absolute minimum standard necessary. No improvement to existing routes will occur that would change route category (i.e., road, primitive road, or trail) or enhance capacity.

Locatable Minerals

Existing Authorizations/Activities (i.e., existing operations conducted under a Notice or a Plan of Operations)

- Request that holders of Notices and Plans of Operation modify their operations to avoid or minimize adverse effects on Bi-State DPS and its habitat. Operators must be informed in the request that compliance is not mandatory.

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Proposed Authorizations/Activities (i.e., new Notices or Plans of Operation)

- Require that new notices and plans of operation include measures to avoid or minimize adverse effects to Bi-State DPS populations and its habitat. Ensure that new notices and plans of operation comply with the requirements in 43 CFR 3809 to prevent unnecessary or undue degradation. Such compliance may assist in avoiding or minimizing adverse effects to Bi-State DPS populations and habitat.

Saleable Minerals

Ongoing Authorizations/Activities (i.e., an authorization has been issued)

- Where valid existing rights exist, work with the holders of authorizations to develop actions such as siting/design of infrastructure, timing of operations, or reclamation standards that will avoid or minimize effects to Bi-State DPS populations and its habitat.

Proposed Authorizations/Activities

- If the BLM has issued or, within 90 days of the issuance of this Instruction Memorandum, the BLM issues a DEIS or a FONSI:
  - Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to Bi-State DPS and its habitat.
  - Determine, in coordination with the respective state wildlife agency, whether the proposed authorization would likely have more than minor adverse effects to Bi-State DPS and its habitat. If the proposed authorization would likely have more than minor adverse effects, then implement the policies and procedures set forth in the section immediately below ("All Other Proposed Authorizations/Activities").

- All Other Proposed Authorizations/Activities
  It is BLM policy that where a field office determines that it is appropriate to issue an authorization, the following process must be followed:
  - The BLM will document the reasons for its determination and implement measures to minimize impacts to Bi-State DPS habitat.
  - In addition to considering opportunities for onsite mitigation, the BLM will, to the extent possible, cooperate with project proponents to develop and consider implementing appropriate offsite mitigation that the BLM, coordinating with the respective state wildlife agency, determines would avoid or minimize habitat and population-level effects (refer to WO-IM-2008-204, Off-Site Mitigation). When developing such mitigation, the BLM should consider compensating for the short-term and long-term direct and indirect loss of Bi-State DPS and its habitat.
  - Unless the BLM determines, in coordination with the respective state wildlife agency, that the proposed pit and mitigation measures would cumulatively maintain or enhance Bi-State DPS habitat, the proposed pit authorization decision must be forwarded to the Bi-State DPS technical Working Team for their review. If this group is unable to agree on the appropriate mitigation for the proposed authorization, then the proposed decision must be forwarded to the EOC, when appropriate, for its review. If the EOC is unable to agree on the appropriate mitigation for the proposed authorization, the EOC will coordinate with and brief the BLM State Director for a final decision in absence of consensus.

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- Exception- Pit Expansion Only: New permits may be issued for pit expansion, provided there are no adverse effects on Bi-State DPS and its habitat.
- Field offices retain the discretion to not move forward with an authorization, where appropriate, or defer making a final decision on regarding an authorization until the completion of the appropriate LUP process for the affected area.

Grasshopper and Mormon Cricket Control and Management

Proposed Authorizations/Activities

- If grasshopper control is proposed, the NEPA analysis must address impacts on Bi-State DPS and its habitat.
- Continue to implement WO-IM-2010-084, Grasshopper and Mormon Cricket Treatments within Bi-State DPS Habitat Coordinate with local Animal and Plant Health Inspection Service (APHIS) personnel and state wildlife agencies concerning treatments in Bi-State DPS habitat.
- Management actions and operating procedures may include, but are not limited, to the following:
  - Evaluate and restrict or modify treatment methods and timing of use or other mitigation.
  - Avoid spraying treatment areas in May and June (or as appropriate to local circumstances) to provide insect availability for early development of Bi-State DPS chicks.
  - Application timing should be implemented to reduce disturbance and impacts to Bi-State DPS.
  - Use approved chemicals with the lowest toxicity to Bi-State DPS that still provide effective control of grasshopper and Mormon cricket. Coordinate with APHIS to determine the approved chemical with the lowest toxicity.
  - Evaluate the appropriate percentages of Environmental Protection Agency (EPA) allowable chemical rates and the pros and cons of available chemical use, in coordination with state wildlife agencies, FWS, and APHIS.
  - Use *Carbaryl* only when necessary to treat large grasshopper and Mormon cricket populations late in the season. APHIS will coordinate the use with the respective BLM state office prior to any application.
  - Implement effectiveness monitoring, if warranted.

Wild Horse and Burro Management

Existing Authorizations/Activities

- Manage wild horse and burro population levels within established Appropriate Management Levels (AML).
- Wild Horse Herd Management Areas will receive priority for removal of excess horses within Bi-State DPS habitat.
- Wild horses and burros remaining in Herd Management Areas/Wild Horse Territories where the AML has been established as zero will receive priority for removal.
- When developing overall workload priorities for the upcoming year, prioritize horse gathers except where removals are necessary in non-PPH to prevent catastrophic herd health and ecological impacts.

Realty Actions (e.g., Land Exchanges, Transfers, and Sales)

It is BLM policy that where a field office determines that it is appropriate to implement a public land disposal action, the following process must be followed:

- The BLM will document the reasons for its determination and implement measures to minimize impacts to Bi-State DPS habitat. Unless the BLM determines, in coordination with the respective state wildlife agency, that the proposed land disposal action would cumulatively maintain or enhance Bi-State DPS habitat, the proposed land disposal action must be forwarded to the Bi-State Bi-State DPS Technical Team for their review. If this group is unable to agree on the appropriate mitigation for the proposed land disposal action, then the proposed decision must be forwarded to the EOC for its review. If the EOC is unable to agree on the appropriate mitigation for the proposed land disposal action, they will coordinate with and brief the BLM State Director for a final decision in absence of consensus.
- Exception: Those land disposal actions (e.g., the BLM's acceptance of an Application for Land for Recreation and Public Purposes, Publication of a Federal Register Notice of Realty Action, Execution of an Agreement to Initiate an Exchange, the BLM's acceptance of a State Application for Selection) initiated prior to or if the BLM is within 90 days of the issuance of a DEIS or FONSI for a land disposal action following the date of this IM.

Vegetation and Resource Monitoring

Existing Authorizations/Activities

- Continue to coordinate with NRCS and its contractors to implement the BLM *Landscape Monitoring Framework Project* developed under the *Assessment, Inventory and Monitoring Strategy* to assess the condition of public lands including PPH at a landscape level.
- Continue to work with livestock grazing permittees/lessees to collect specific kinds of monitoring information on their allotments to supplement monitoring information collected by the BLM (refer to WO-IB-2010-015, Grazing Permittee - Joint Cooperative Monitoring, for additional information) or Forest Service (cf. FSM or directive).
- Until further direction is provided, and within the range of the Bi-State DPS, the Wildlife Program for the BLM (1110) will collect, consolidate, and report the following annually to the Division of Fish and Wildlife Conservation (WO-230):
    - Miles, acres, and/or number of structures (e.g., fences, water developments, well pads, gravel pits, roads) removed, installed, relocated, decommissioned, modified, or mitigated to benefit Bi-State DPS and its habitat;
    - Number of BLM use authorizations issued or deferred and the associated acres where changes in management were implemented to benefit Bi-State DPS and its habitat;
    - Acres where the BLM implemented changes in use in order to improve habitat for the Bi-State DPS in cooperation with other Federal or state agencies;
    - Acres of habitat altered by wildland fire, acres treated after fire, and acres not treated after fire that were in need of treatment;
    - Acres of habitat altered by fuels treatment projects and how those treatments affected habitat;
    - Acres of vegetation treated to benefit Bi-State DPS habitat; and
    - Number of allotments assessed for land health standards and the associated acres, according to Table 7A of the *Rangeland Inventory, Evaluation and Monitoring Report*.

Proposed Authorizations/Activities

- New activity plans and/or project plans must include clear objectives to benefit Bi-State DPS habitat and vegetative resource conditions. Base these vegetative objectives on (1) the native shrub reference state as shown in the *State and Transition Model* outlined in the applicable ESD, where available; (2) published scientific habitat guidelines for specific areas and Bi-State DPS habitat requisites; and (3) local Bi-State DPS working group recommendations.
- Monitor activities and projects using the BLM core indicators and protocols (see the BLM *Assessment, Inventory and Monitoring Strategy*) to ensure that the objectives are being met. Supplement data collection, as necessary, with other programmatic information for the site to demonstrate that objectives are being met.
- Complete habitat inventories/assessments *in* a timely manner so that data are available for consideration in livestock grazing permit renewals and other management decisions.

Timeframe: This IM/ID is effective immediately and will remain in effect until the BLM completes the LUP process to amend the RMPs to provide protection for Bi-State DPS and its habitat.

Budget Impact: This IM/ID will result in additional costs for coordination, NEPA review, planning, implementation, and monitoring.

Background: In March 2010, the FWS published its petition decision for the Bi-State Distinct Population Segment of Bi-State DPS as "Warranted but Precluded." Inadequacy of regulatory mechanisms was identified as one of the major factors in the FWS's finding on Bi-State Distinct Population Segment of Bi-State DPS. The FWS has identified the principal regulatory mechanism for the BLM as protective measures embedded in LUPs. The goal is to conserve habitat necessary to sustain Greater Bi-State DPS populations and reduce the likelihood of listing under the Endangered Species Act.

Manual/Handbook Sections Affected: None.

Coordination: This IM/ID was coordinated with the Strategy Working Team for the Bi-State Sage-grouse Distinct Population Segment.

Contact: Direct any questions or concerns to application of this direction to Raul Morales, Deputy State Director for Resources, Lands, and Planning (NV930) at 775-861-6767 or rmorales@blm.gov, or to Joe Tague, Branch Chief Renewable Resources and Planning (NV934) at 775-861-6556 or jtague@blm.gov.

Signed by:	Authenticated by:
Amy Lueders	Edison Garcia
State Director	Staff Assistant

Attachment
1- Bi-State Sage-Grouse DPS Preliminary Priority Habitat Map (1 p)

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[1] Doherty, K. E., J.D. Tack, J.S. Evans and D. E. Naugle. 2010. Mapping breeding densities of Greater Sage-Grouse: A tool for range-wide conservation planning. BLM Completion Report: Interagency Agreement # L10PG00911.
[2]Stiver, S.J., E.T Rinkes, AND D.E. Naugle. 2010. Sage-grouse Habitat Assessment Framework. U.S. Bureau of Land Management. Unpublished Report. U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.
[3] Stevens, B.S. 2011. Impacts of Fences on Greater Sage-Grouse in Idaho: Collision, Mitigation, and Spatial Ecology (Master's Thesis). University of Idaho, Moscow, Idaho.

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A3: The Humboldt-Toiyabe National Forest Summary of Current Direction and Best Management Practices for the Protection of the Bi-state Sage Grouse

Note: This document has been scanned in its original format and begins on the following page.

Greater Sage-grouse

(*Centrocercus urophasianus*) updated: 9/19/11

ESA Candidate (Greater sage-grouse listing priority = 8, bi-state listing priority = 3), USFS R4 SS

- HTNF Management Plan Guidance: (Please note that while these guidelines are outdated, they are currently HTNF's official direction.)
  Humboldt National Forest Land and Resource Management Plan (1986):
  - Sage-grouse are designated as a Management Indicator Species (MIS) for sagebrush and riparian areas. Monitoring should detect a 20% change in 5 years (current: 36,300, min/max: 3,900/40,000)
  - Amendment #2: Key sage grouse habitat is defined as the portion of the habitat necessary to maintain and perpetuate the population. Included are winter ranges, breeding complexes, brood rearing areas, and water sources. Project proposals that will alter identified key sage grouse habitat will be analyzed, one the ground, with the appropriate NDOW personnel per the MOU between the FS R4 and NDOW The basis for project evaluation will be the current Forest Land Management Plan S&G, the Western States Sage Grouse Management practices as outlined in the technical bulletins and the Western States Sage Grouse Guidelines for Habitat Protection. Inventory of key sage grouse habitat and its various components will occur as part of the analysis of all proposed projects with the potential to adversely affect habitat capability.

  Toiyabe National Forest Land and Resource Management Plan (1986):
  - Sage-grouse are designated as an MIS.
  - The following standards are set for sage grouse habitats:
    - Use dropping counts, sage grouse sightings, and historical records to reveal location and importance of sage grouse habitat.
    - Maintain 20-55% canopy cover on sage grouse range.
    - Use irregularly designed patterns when manipulating brush in sage grouse habitat.
    - Maintain meadows in sage grouse range in high ecological status. Restore meadows.
    - Retain irregular leave strips of untreated sagebrush approximately 100 yards wide adjacent to stream bottoms and meadows.
    - Include use of a combination of forbs and grasses desirable to sage grouse when rehabilitating sage grouse habitat.
    - Maintain desirable sagebrush habitat on known sage grouse wintering areas.
    - As appropriate, National Forest personnel will arrange a joint on-the-ground review of proposed projects with the proper local or state wildlife biologist so details of wildlife coordination can be explained and discussed.
    - Protect critical areas for sage grouse brood rearing.
  - Monitoring is deferred to NDOW with the direction that monitoring should not show a decline (no % decline of time period are specified).
- Occurrence and Habitat Data Sources:
  NDOW Lek Layer Map
  NDOW Seasonal Habitat Map (winter, nesting, summer)
  NDOW Core Breeding Habitat Map (SW ReCap vegetation layer)
  NDOW Habitat Categorization Map (categories 0-5)
  BLM R-Value Map (Prioritization of Restoration Projects based on Habitat Condition and Importance)
- Mapping Parameters: Sagebrush-obligate found above 4,000 feet in elevation.
  Lek: Open sites within or adjacent to sagebrush dominated habitats: <10% slope, >25cm precipitation, <2km from water, low disturbance, low woodland encroachment (Nisbet et al. 1983)
  Nest: Can be >20km from a lek. They generally have larger bushes with greater obstructing cover.
  Brood-rearing: Early brood-rearing – sagebrush dominated areas near the nest. Late brood-rearing – area with perennial forbs at the edges of upland meadows. A mosaic of upland sagebrush vegetation intermixed with mountain meadows and spring systems.
  Winter: Broadly distributed, but largely dominated by mountain big sagebrush, Wyoming big sagebrush and low or black sagebrush.

- Survey Method: Assume that all suitable habitat, including that which is and is not mapped by NDOW (including a 3-mile buffer around all leks) is occupied unless surveys indicate otherwise. For walking transects, intensively search for birds or sign and record all observations with a GPS unit. Report data as the number of sign per kilometer of survey route walked. Here is a sample survey method:
  Mature sagebrush communities and meadow vegetation within the proposed area of disturbance and a 200-foot buffer outside of the disturbance footprint will be systematically surveyed with walking transects. Greater sage-grouse or their sign will be intensively surveyed for along each transect (50-100 feet apart). The UTM coordinates of each greater sage-grouse observation, nest, or fresh sign will be recorded with a GPS unit. A trained pointing dog will be used to assist in locating sage-grouse. Data will be reported as the number of sign per kilometer or survey route walked. Such data will be also provide a distribution map of where sage-grouse and/or sign were found.
- Monitoring: Sage-grouse demographics mirror those of other upland game birds with "boom and bust" natural cycles independent of anthropogenic activity; long-term data from NDOW indicate that a minimum of 10 years of monitoring is required to separate project effects (signal) from natural cycles (noise). NDOW oversees the state-wide sage-grouse monitoring effort in Nevada.
- Avoidance Measures/ Design Features (SO guidance is based on *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and their Habitats* (Nevada Governor's Sage-grouse Conservation Team 2010)):
  - Active leks (Category 1) and designated R0 habitat*:
    - No development (including transmission lines) within 3 miles of active leks. No roads within 0.6 miles.
    - No high-level disturbance within 3 miles of active leks during critical dates.
    - No low-level disturgance within 0.6 miles of active leks during critical dates.
    - Note: Migratory birds require expanded buffers to include the associated nesting habitat for that population.
      *R0 are described as, "habitat areas with desired species composition that has sufficient, but not excessive, sagebrush canopy and sufficient grasses and forbs in the undersotry to provide adequate cover and forage to meet the seasonal needs of sage-grouse (NV 2010).
  - Winter and high-quality brood-rearing habitat (Category 2):
    - No high-level disturbance in this habitat during critical dates (01 December – 01 March).
  - Springs, meadows, and riparian corridors:
    - No development within 0.6 miles of these features within identified brood-rearing habitats.
    - No high-level disturbance within 0.6 miles of these features within identified brood-rearing habitats during critical dates (01 June – 01 September).
  - Fire projects designed to enhance sage-grouse habitat must follow timing restrictions.
- Critical Dates (Dates are based on NDOW guidance. Guidance from USFS R4 is in parentheses):
  - Winter 12/1 – 3/1 (USFS R4 11/5-3/15)
  - Breeding (active lek) 3/1-5/15
  - Nesting/Early brood-rearing 3/15-6/30
  - Late Brood-rearing 6/1 – 9/1 (USFS R4 7/1 – 9/30)

  *The best times to allow for noise/activity are July 15 – November 30 (USFS R4 October 1 – November 30)
- Disturbance Examples:
  - High-level: ongoing noise (driling, continual traffic, generators). Noise above 55 decibels (dBa) should be muffled.
  - Low-level: concentrating livestock activities (salting, handling areas, water sources), light traffic (<12 vehicles per day from 10am-5pm).
- Conservation Measures/Mitigation/Restoration:
  - Consult local PMU and implement restoration strategies.
  - Coordinate large-scale restoration projects with NDOW and BLM.
  - Actively and aggressively suppress all wildland fires that occur in or near sage-grouse habitat.
  - Currently, there is no science to indicate that leks that are destroyed can be successfully created offsite and used by sage-grouse.
- Solar/Wind/Utility Developments:

- Contact NDOW and FWS for guidance.

- Key References:
  - Knick, S. T., and J. W. Connelly (editors). 2011. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology Series (vol. 38), University of California Press, Berkeley, CA.
  - Nevada Sage-grouse Conservation Plan: http://www.ndow.org/wild/conservation/sg/plan/ (NDOW)
  - Nevada Governor's Sage-grouse Conservation Team. 2010. Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats.
- Working Groups and Experts:
  - NV Governor's Sage Grouse Conservation Team (Sean Espinosa, lead)
  - NDOW: Sean Espinosa, sespinosa@ndow.org, 775-688-1523
  - FWS (NV): Steve Abele, steve_abele@fws.gov, 775-861-6300
  - HTNF Contact: Rachel Mazur, rmazur@fs.fed.us
- Humboldt National Forest LRMP (1986): Designates sage-grouse as an MIS for sagebrush grass and riparian areas. Monitoring should be designed to detect a 20% change in five years. The 1986 populations was 36,300. The min/max was designated as 3,900/40,000.
  - Amendment #2 (1990): Key sage grouse habitat is defined as the portion of the habitat necessary to maintain and perpetuate the population. Included are winter ranges, breeding complexes, brood rearing areas, and water sources. Project proposals that will alter identified key sage grouse habitat will be analyzed, one the ground, with the appropriate NDOW personnel per the MOU between the FS R4 and NDOW The basis for project evaluation will be the current Forest Land Management Plan S&G, the Western States Sage Grouse Management practices as outlined in the technical bulletins and the Western States Sage Grouse Guidelines for Habitat Protection. Inventory of key sage grouse habitat and its various components will occur as part of the analysis of all proposed projects with the potential to adversely affect habitat capability.
- Toiyabe National Forest LRMP (1986):
  - Standards for sage-grouse habitats:
    - Use dropping counts, sage grouse sightings, and historical records to reveal location and importance of sage grouse habitat.
    - Maintain 20-55% canopy cover on sage grouse range.
    - Use irregularly designed patterns when manipulating brush in sage grouse habitat.
    - Maintain meadows in sage grouse range in high ecological status. Restore meadows.
    - Retain irregular leave strips of untreated sagebrush approximately 100 yards wide adjacent to stream bottoms and meadows.
    - Include use of a combination of forbs and grasses desirable to sage grouse when rehabilitating sage grouse habitat.
    - Maintain desirable sagebrush habitat on known sage grouse wintering areas.
    - As appropriate, National Forest personnel will arrange a joint on-the-ground review of proposed projects with the proper local or state wildlife biologist so details of wildlife coordination can be explained and discussed.
    - Protect critical areas for sage grouse brood rearing.
  - Monitoring Plan: Be sure NDOW data don't show a decline.
- Northern Sierra Amendment (1999): Designates the sage-grouse as a species-at-risk.

Appendix B: Enhancement Act Lands

On April 26, 1989 PL 100-550 (Nevada Enhancement Act) was enacted by the Congress. The purpose of this act was to "…increase and improve the efficiency and cost effectiveness of management of lands by having administration under one agency". In addition the Congress stated that these lands would be subject to the planning requirements of section 6 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) as amend by the National Forest Management Act (NFMA), except all transferred lands shall continue to be managed in accordance with plans in effect on the date of enactment of the Act until considered in plans developed under the RPA-NFMA.

The Enhancement Act lands surrounding the portions of the Bridgeport Ranger Districts located in Nevada are all adjacent to the Bridgeport Pinyon-Juniper Management Area #6 as described in the Toiyabe National Forest Land and Resource management Plan. The Bridgeport Pinyon Juniper Management Area is 605,400 acres with management emphasis on key values of wildlife, dispersed recreations, and grazing. Also included in the management direction is the need to provide for the orderly exploration, development and reclamation of mining resources in a manner that minimizes effects on range, wildlife and recreation values.

The proposed action would apply the management area direction along with the Goals, Objectives, Standards and Guidelines for the Bi-state Sage-grouse amendment to the Sweetwater Enhancement Act lands surrounding the Bridgeport Pinyon Juniper Management Area#6. This addition brings the enhancement act lands under the Toiyabe National Forest Land and Resource Management plan and increases the size of the Bridgeport Pinyon –Juniper #6 management area from 605,400 acres to 863,736 acres (figure B-1). All general and Management Area #6 specific management plan direction as presented in the Toiyabe National Forest Land and Resource Management Plan as amended would apply to all portions of the enhancement act lands.

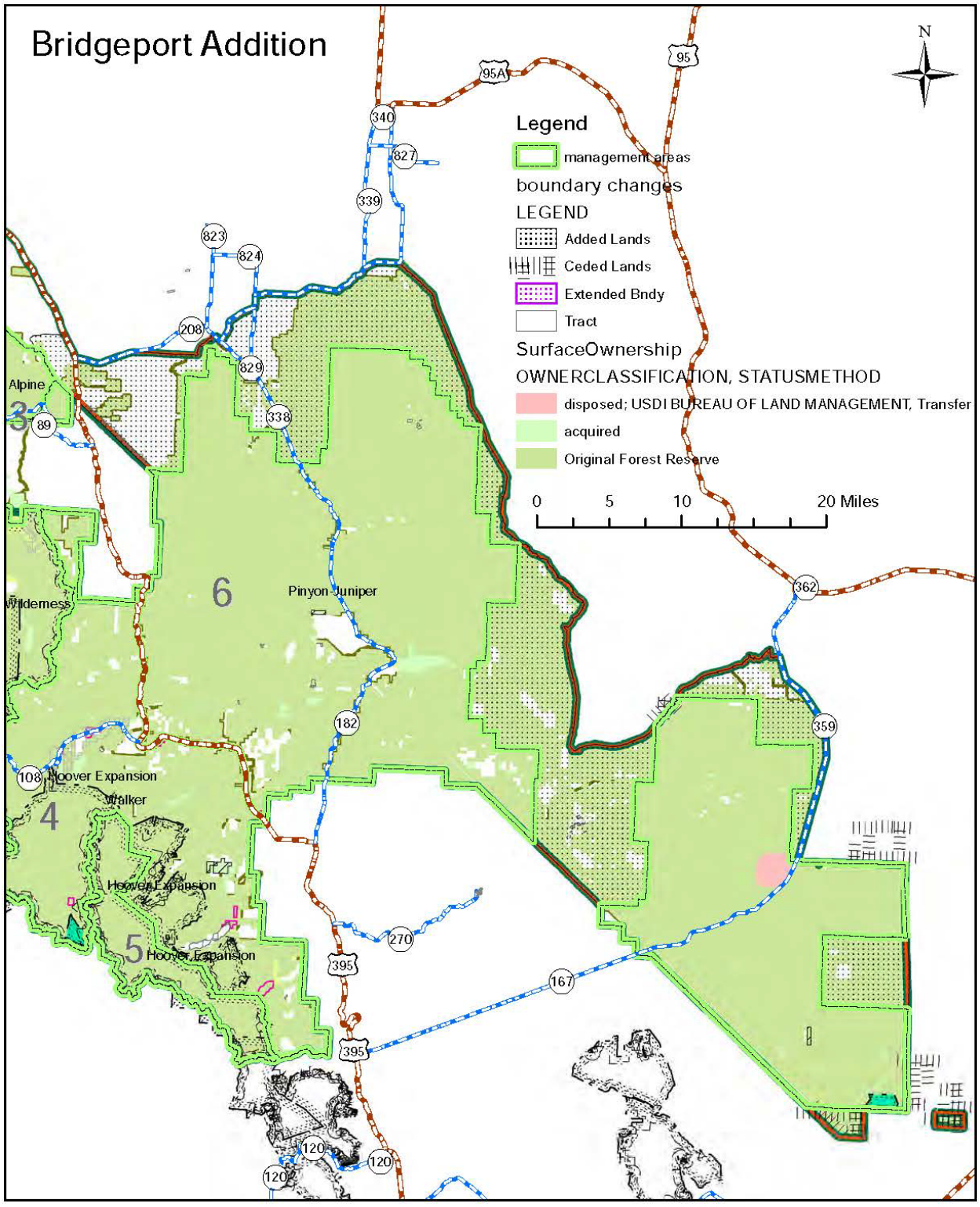

Figure B-1. Bridgeport Addition; Enhancement Act lands